

COUNTY OF SAN DIEGO

GUIDELINES FOR DETERMINING SIGNIFICANCE
AND
REPORT FORMAT AND CONTENT REQUIREMENTS

WILDLAND FIRE AND FIRE PROTECTION



LAND USE AND ENVIRONMENT GROUP

Department of Planning and Land Use
Department of Public Works

~~March 19, 2007~~

[First Revision](#)

[Circulated for Public Review](#)
[May 15, 2008 – June 16, 2008](#)

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APPROVAL

I hereby certify that these **Guidelines for Determining Significance and Report Format and Content Requirements for Wildland Fire and Fire Protection** are a part of the County of San Diego, Land Use and Environment Group's Guidelines for Determining Significance and Technical Report Format and Content Requirements and were considered by the Director of Planning and Land Use, in coordination with the Director of Public Works on the XX day of XXX, 2008-19th day of March, 2007.

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I hereby certify that these **Guidelines for Determining Significance and Report Format and Content Requirements for Wildland Fire and Fire Protection** are a part of the County of San Diego, Land Use and Environment Group's Guidelines for Determining Significance and Technical Report Format and Content Requirements and have hereby been approved by the Deputy Chief Administrative Officer (DCAO) of the Land Use and Environment Group on the XX day of XXX 2008-19th day of March, 2007. The Director of Planning and Land Use is authorized to approve revisions to these Guidelines for Determining Significance and Report Format and Content Requirements for Wildland Fire and Fire Protection, except any revisions to the Guidelines for Determining Significance presented in Chapter 4.0 must be approved by the DCAO.

Approved, XXXX, 2008

Text
Approved
March 19, 2007

First Revision
XXXX, 2008

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EXPLANATION

These Guidelines for Determining Significance for Wildland Fire and Fire Protection and information presented herein shall be used by County staff for the review of discretionary projects and environmental documents pursuant to the California Environmental Quality Act (CEQA). These Guidelines present a range of quantitative, qualitative, and performance levels for particular environmental effects. Normally, (in the absence of substantial evidence to the contrary), an affirmative response to any one Guideline will mean the project will result in a significant effect, whereas effects that do not meet any of the Guidelines will normally be determined to be "less than significant." Section 15064(b) of the State CEQA Guidelines states:

"The determination whether a project may have a significant effect on the environment calls for careful judgment on the part of the public agency involved, based to the extent possible on factual and scientific data. An ironclad definition of significant effect is not always possible because the significance of an activity may vary with the setting."

The intent of these Guidelines is to provide a consistent, objective and predictable evaluation of significant effects. These Guidelines are not binding on any decision-maker and do not substitute for the use of independent judgment to determine significance or the evaluation of evidence in the record. The County reserves the right to modify these Guidelines in the event of scientific discovery or alterations in factual data that may alter the common application of a Guideline.

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List of Acronyms

ALS	Advanced Life Support
AMR	American Medical Response
BLS	Basic Life Support
CBC	California Building Code
CCR	California Code of Regulations
<u>GDF CAL FIRE</u>	California Department of Forestry and Fire Protection
CDFG	California Department of Fish and Game
CEQA	California Environmental Quality Act
CFC	County of San Diego Consolidated Fire Code
CSA	County Service Area
EMS	Emergency Medical Services
EMT	Emergency Medical Technician
FAHJ	Fire <u>Agency Authority</u> Having Jurisdiction
<u>FMZ</u>	<u>Fuel Modification Zone</u>
FPD	Fire Protection District
FPP	Fire Protection Plan
FMZ	Fuel Modification Zone
IAFC	International Association of Fire Chiefs
<u>IBC</u>	<u>International Building Code</u>
<u>IFC</u>	<u>International Fire Code</u>
IPCC	Intergovernmental Panel on Climate Change
ISO	Insurance Services Office
LAFCO	Local Agency Formation Commission
LBZ	Limited Building Zone
<u>LRA</u>	<u>Local Responsibility Area</u>
MOU	Memorandum of Understanding
MWD	Municipal Water District
NEC	National Electric Code
NEPA	National Environmental Policy Act
NFPA	National Fire Protection Association
SANDAG	San Diego Association of Governments
SRA	State Responsibility Area
UBC	Uniform Building Code
UFC	Uniform Fire Code
UMC	Uniform Mechanical Code
UPC	Uniform Plumbing Code
USDA	United States Department of Agriculture
USFS	United States Forest Service
USFWS	United States Fish and Wildlife Service
<u>VFPD</u>	<u>Vista Fire Protection District</u>
WFCA	Western Fire Chiefs Association
WUI	Wildland-Urban Interface

INTRODUCTION

This document provides guidance for evaluating adverse environmental effects that a proposed project may have from wildland fire and establishes standards to ensure that development projects do not unnecessarily expose people or structures to a significant risk of loss, injury or death involving wildland fires. Specifically, this document addresses the following questions listed in the California Environmental Quality Act (CEQA) Guidelines:

Appendix G, VII. Hazards and Hazardous Materials

- h) Would the project expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?

Appendix G, XIII. Public Services

- a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance service ratios, response times or other performance objectives for any of the public services:
 - i. Fire protection?

Appendix G, XV. Transportation/Traffic

- e) Would the project result in inadequate emergency access?

Appendix G, XVI. Utilities and Service Systems

- d) Would the project have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?

1.0 GENERAL PRINCIPLES AND EXISTING CONDITIONS

A vast amount of the County's undeveloped lands support natural habitats such as grasslands, sage scrub, chaparral, and even coniferous forest. In the context of fire ecology, these areas are known as wildlands. Fire ecology research has shown that the natural fire regime for the shrublands and forests in San Diego County was one of frequent small fires and occasional large fires. Modern society has interrupted and fractured the natural fire process by initiating fire suppression policies, introducing invasive plant species that burn readily (i.e. eucalyptus), and building their homes and living within the wildlands, such as San Diego's back country. By building homes in the wildland, humans are more susceptible to the dangers of large wildland fires.

As more residences and communities are built in the wildlands, improved and new methods to protect people and structures from the risk of loss or death from wildland fires must be considered (Lindroth 2005).

1.1 Wildland-Urban Interface and Intermix

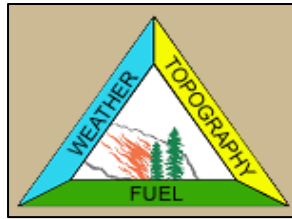
The term Wildland-Urban Interface (WUI), first defined in 1974 (C.P Butler 1974) in relation to fire, currently means the area where structures and other human developments meet or intermingle with undeveloped wildland (Radeloff et al 2005). Creating a WUI, that is, building within the wildlands, has myriad adverse effects making the WUI a focal area for human-environment conflicts such as wildland fires, habitat fragmentation, invasive species, and biodiversity decline. Fire is one of the most serious problems along the WUI boundary (Zedler and Seiger 2000; Radeloff et al 2005; and others)

The definition of WUI as specified by some mapping functions includes both wildland and development components that existed at the time the map was generated. Caution should be exercised in relying too heavily on maps defined as "WUI", as projects considered for future development may be far enough beyond current development to not be shown as "WUI".

The goals of protecting people and structures from death or damage during wildfires has changed from suppressing all wildland fires, to learning to live with them, through greater political leadership, agency innovation, public involvement, and community responsibility (Dombeck et al, 2004). The current approach argues for residential compatibility with wildland fire (Cohen 2002; Keeley 2002). As the population of San Diego County increases and the WUI expands, fire hazards and risks continue to be encountered.

1.2 Wildfire Environment

Three factors influence the wildland fire environment: weather, fuel, and topography.



Source: USDA Forest Service

1.2.1 Weather

Weather plays a critical role in determining if a wildland fire will ignite. Dry, hot and windy conditions for prolonged periods of time increase the likelihood for a major wildland fire. The dry and hot weather lowers the moisture content in the wildlands vegetation, contributing to favorable burning conditions. Weather conditions are most hazardous in drought situations because the moisture content of the environment is lower than normal. When supported by high wind speeds, a fire ignited in dry, hot conditions can burn rapidly and intensely. Seasonal dry winds like the “Santa Ana” have a tremendous effect on fire speed and flame length.

Small fires may be excessively fanned and spread by Santa Ana winds, which are dry, sometimes hot dusty winds that blow westward through the canyons toward the coastal areas in southwestern California. Santa Anas are seasonal winds, occurring mostly during fall, winter and spring. However, they are most often associated with late summer and fall when fires can ignite naturally in the extremely dry native vegetation. The extreme winds sustain ignition and can cause wildfires to spread when hot embers drop into the dry vegetation. The high winds also allow the wildfire to spread so rapidly and grow so large that the fires are beyond control or suppression. These conditions led to the October 2003 wildland fires in southern California.

Weather has been considered one leg of the U.S. Forest Service’s Fire Behavior Triangle because large fire seasons in the western U.S. during the 20th century helped shape the U.S. Forest Service’s fire suppression policy. These fires occurred during drought years and were spread by the Santa Ana winds of that season. The evolution of fire research was first fire as forestry, then fire as physics, by the end of the 1980s fire effects, and perhaps most recently, global change (Brown 2003). International research and global communications have brought fire into the realm of global issues. Smoke from large fires in the western U.S. as well as in other arid areas, such as Australia, have now been seen to affect the entire Earth, and researchers have become aware that climate underlies the prevalence of wildland fire, which can be enhanced by the more local weather conditions. In the 1960s and 70s, climate dynamics (physics based concepts of the climate system) began to evolve, but the field of climatology did not become highly popular until after the 1982-1983 El Nino event. Media and public popularity of climate blossomed after the successful prediction and occurrence of the

1997-1998 El Nino event, and in the politically charged atmosphere of global warming (Brown 2003).

San Diego County has ~~four~~ five climate zones (Figure 1): marine, coastal, transitional, ~~inland-coastal~~, ~~mountain~~, interior, and desert. These distinct zones are caused by the County's varied topography. Natural variations will be an important part of future climate changes and variability, not just in the County, but worldwide. In addition, increased concentrations of atmospheric greenhouse gases and sulphate aerosols are expected to yield important human-induced changes. The Intergovernmental Panel on Climate Change (IPCC) has concluded that there is a strong likelihood of both global and regional climate change. In response to an increase in the globally averaged surface temperature of the Earth, average precipitation is expected to increase, as are changes in occurrences of extreme events, particularly those related to temperature and precipitation. These aspects of climate change, particularly in a regional context, will directly impact wildland fire (Brown et al. 2004).

1.2.2 Fuel

Fuel is required for a fire to burn. In a wildland fire the native vegetation provides the fuel, which usually includes both living and dead vegetation. The amount, arrangement, and moisture content of the fuel, known as fuel load, can influence the ignition and intensity of a wildland fire. The amount of fuel depends on the volume and type of vegetation; typically, the greater the density of vegetation, the greater the wildfire threat. An indefensible home in the wildland can also become fuel for a wildland fire.

In San Diego County wildland fire is prevalent in cismontane shrublands (various types of chaparrals and sage scrubs) and, to a lesser extent, montane coniferous forests. This is consistent with a pattern of increased fire ignitions along the relatively low elevation urban-wildland interface, and an increase in the efficiency of fire suppression in high elevation forests (Wells et al 2004). Though occurring in the desert, fire is less of a danger to people and structures there.

The conditions of the vegetation and climate influence the intensity of a wildfire. Dependent upon the vegetation's moisture content a wildfire threat may be minimized or exacerbated. Moisture content is based on the type of soil, plant material, and atmospheric conditions. For example, clay soils retain more moisture than sandy and rocky soils; hydrophytes (wetland) and riparian vegetation retain more moisture than coastal sage scrub; and the coastal zone tends to be more humid than the interior. Contrary to popular belief, some native shrubs in San Diego County have higher moisture levels than ornamentals, when growing in similar environments. In effect, the higher the moisture content, the lower the wildfire threat.

1.2.2.1 Shrublands

Some researchers have considered the natural fire regime in southern California shrublands to be one of small, frequent fires that fragmented the landscape into a fine-grained mixture of vegetative age classes that precluded large, catastrophic fires and

that society, through fire suppression, interrupted that natural regime. They believed that highly effective fire suppression actions suppressed this regime and resulted in the large catastrophic fires such as those in 2003. Recent field research on the fire regime shows that the natural fire regime before human intervention included large, high-intensity fires, leading to the conclusion that current fire management policies have not created the contemporary large fire regime but that it has always been present (Keeley and Fotheringham 2001).

Loss of property and lives increases in places where people and structures are placed within the wildlands that are naturally subject to high intensity fires (Keeley 2004). As development pushes further eastward in San Diego County, more and more people are subject to the hazards of living with wildland fire. Often homes and other structures are built and maintained in a manner that leaves them and their occupants especially vulnerable.

Though people may not cause fires to be large, human carelessness and arsonists have caused wildland fires to be more frequent. Shrublands have not adapted to fire itself, but to a particular fire regime that provides a period of extended disturbance-free conditions for regrowth of native shrubs and other native species (Keeley 2004). When shrublands burn more often than every two or three decades (at a minimum) they can be degraded or even converted to annual grasslands that are resistant to recolonization by native shrubs but vulnerable to invasion by non-native invasive weeds. Invasive non-native species can have a drastic effect on native vegetation communities, including altering their fire regimes (Brooks et al. 2004).

1.2.2.2 Forest

The mountains in San Diego County are the central portion of the Peninsular Ranges, which extend northward into Riverside County (San Bernardino Mountains) and southward into Baja California to the Sierra San Pedro Mártir. The fire regime in the Peninsular Ranges of southern California have been shown to be more like the that of the Sierra San Pedro Mártir than to the Sierra Nevada (Skinner et al 2006). In the Sierra San Pedro Mártir, where fires have not been suppressed, fire return periods averaged 52 years from 1925-1991, and 24 years for the past 300 years (Minnich et al 1994). The fire regime is one of relatively high intensity surface fires that denude surface litter, shrubs, saplings, and pole-size stems, forming open forests of mature trees. These fire result in large diameter canopy trees and low density in smaller size classes. Natural ignition rates are sufficiently high over fire rotation periods of 52 years that most lightning discharges strike immature stands and begin mostly spot burns. Therefore, all stands experience fire frequently (perhaps every 20 years), but the total fire occurrence at a site is a mixture of spot burns and infrequent landscape-scale burns, the latter accounting for most disturbance and consumption of fuels (Minnich et al 2000). However, as a result of fire suppression the composition of the forests in southern California are different than those in the Sierra San Pedro Mártir (Gill 2002). In the Sierra Nevada, suppression has resulted in generally eliminating fires of low-to moderate severity, and since current technology is not capable of eliminating the high-

severity fires, the fires that affect significant portions of the landscape are now almost exclusively high-severity, large, stand-replacing fires (Skinner and Change 1996).

The fuel load in the region's mountain forests has been dramatically increased by an overwhelming number of dead and dying trees. The on-going drought conditions in Southern California and the long term exposure to air pollution, particularly ozone, have stressed the trees. Excessive ozone exposure causes premature loss of pine needles, reducing the trees ability to produce food and tissues. Much of the forested land is overstocked, increasing drought stress to the trees. Mortality in the drought-stressed trees is caused by complexes of pests, including leafy and dwarf mistletoes, root diseases, bark beetles, and flatheaded borers. Bark beetles are commonly believed to be the culprits. However, it is not uncommon to find dead and dying trees which have not been attacked by tree killing bark beetles, but rather succumbed to the cumulative effects of water stress and pests other than bark beetles, particularly mistletoe and root disease. In many areas of the forests, the vegetation is at a density that can only be supported in wet years, resulting in dieback during these dry years. Thus the current mortality is driven by the overstocked condition of the forest, not by the presence or absence of any particular pest. Compounding the problem in urban areas are poor management practices (construction, inappropriate planting and irrigation, etc.) resulting in damage to tree roots. (Southern California Society of American Foresters 2007).

1.2.2.3 Invasive Species

Human have introduced nonnative species and have contributed to their wide-spread invasion of native plant communities throughout the developed world. Chaparral habitats require stand-replacing fires at intervals of at least 20 years (Keeley 2003). Following the opening of the chaparral canopy by fire under normal conditions, annual plant species, called fire-followers, dominate the chaparral for a few years as the chaparral shrubs resprout from stumps and burls, and germinate from seeds. As these shrubs grow, the canopy again closes so that much of the ground beneath the chaparral is bare. More frequent burning, as when wildland fire is human caused, disrupts this cycle by keeping the chaparral shrubs burned away. This disruption of the normal fire regime can allow nonnative species to dominate the fire-followers† when the shrubs are not allowed to grow to maturity. With the introduction of a vast array of nonnative species, many of which are from regions of the world with Mediterranean climates so they grow well in San Diego County, nonnative species can replace native species.

Invasive plants can change fire regimes in ways that promote their own dominance. Densely packed invasive grasses are notorious for increasing landscape flammability, which promotes fire return intervals that are often much shorter than native plants can survive (Brooks 2001; Brooks and D'Antonio 2003; Menakis et al. 2003).

1.2.3 Topography

Topography can dramatically [effect the rate of fire spread. increase fire speed in areas with steep slopes.](#) Steep topography allows for a slope to be pre-heated from

convection that allows for faster combustion of fuel [in the upslope direction](#). As a general rule [with other factors constant](#), it can be assumed, the steeper the terrain, the faster the [upslope](#) fire speed.

1.3 Wildland-Urban Interface Ignition Factors

Fires can ignite naturally or be caused by people. In the montane coniferous forests of the Southwest, lightning-ignited fires are abundant and human ignitions are far less important than in lower-elevation shrublands of southern California where lightning is uncommon and humans cause most of the fires (Keeley and Fotheringham 2003). Over 95 percent of fires in southern California shrublands have been started by people, which has increased fire frequency and increased the chances of ignitions during Santa Ana winds (Keeley and Fotheringham 2003). In general, more people have exposure to the shrublands than to the forests, since most of the development in San Diego County is on the coastal plain and in the foothills. People living in the wildlands, traveling on roads built through the wildlands, and recreating in the wildlands can ignite wildland fires inadvertently. In addition, wildland fires are sometimes ignited by arsonists. All these situations create more opportunities for potential wildland fire danger to people and their structures.

Wildland fires only spread if the wildfire meets the oxygen, fuel and heat requirements for ignition and continued combustion. In wildland fires oxygen is not limited, so the continuation of wildfire combustion relies on fuel and heat. Fuel, as mentioned above, is commonly the wildland vegetation and landscaping, but structures and accessories such as projections can add to the fuel source. Burning fuel creates heat and heat allows fires to spread when there is sufficient fuel. Three primary means of heat transfer can result in ignition: conduction, convection and radiation.

1.3.1 Conduction

Conduction is heat transfer through a solid or from the heated surface to the interior of a solid. An example of heat conduction resulting in structure ignition would be flame impinging on the exterior metal siding of a mobile home. Like a frying pan, heat is transferred to structural components inside, resulting in ignition.

1.3.2 Convection

Convection is defined as transfer of heat by a circulating fluid – either gas or liquid. Heat rises from a wildland fire and is transferred by air currents to other objects, such as a house on a ridge top. Winds can carry heat by convection to vegetation and structures.

1.3.3 Radiation

Radiation is energy transfer that travels across space without the need for intervening medium such as air. Examples in wildfires include ignition of light combustibles in

advance of the flame front, like dry fine grasses or curtains behind a window. Radiation does not require flames to strike a structure to cause ignition. The source of flame radiation is the flame-front. Dependent on the length, height, and width of the flame-front (the leading edge of a wildland fire), and the flame duration, an unprotected structure can be ignited by radiant heat.

1.3.4 Firebrands

Firebrands are burning embers that become airborne and are blown beyond the fire front. Firebrands can be created from virtually any fuel source that is light enough to be blown upwards; however, vegetation is the most common source of firebrands. [A burning structure also creates burning embers, particularly at collapse.](#) Firebrands combine heat transfer methods of conduction and convection. Firebrands extend the boundaries of wildland fire hazard zones and present a prominent threat to structures, especially homes. Dependent on weather and the size of the ember, a firebrand can be carried far ahead of the fire front. The hazard can be worsened if structures are not ignition-resistant and cannot repel the heat of a burning ember. [Flammable vegetation adjacent \(within ten feet\) of a structure acts as a receptacle for fire brands, and will impact the structure.](#)

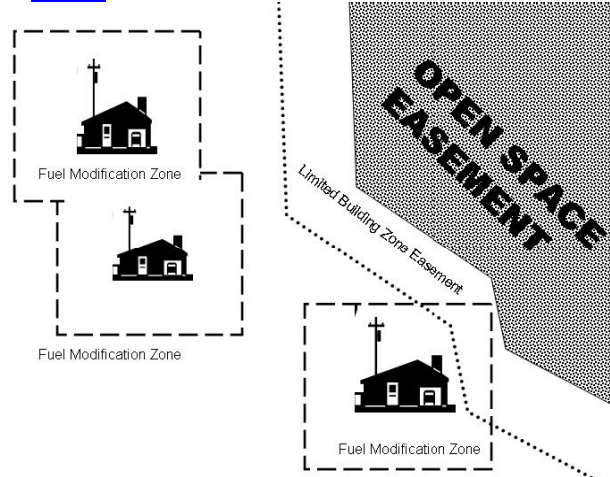
1.3.5 Flame Impingement

Flame impingement, a form of heat conduction, involves heat transfer from a flame that directly strikes a structure, potentially causing ignition of the structure. Flame size and the duration of flame impingement directly affect the potential for ignition of a structure.

1.4 Defensible Space

To improve the survivability of structures in a wildland fire event, fire professionals recommend using defensible space around all structures occupied by human or domestic animals. Defensible space creates a separation zone between wildlands and structures, a space where fuel is managed or modified to minimize the spread of fire to the structure and allowing space for defending structures from burning vegetation. Fuel management includes keeping the area clear of flammable manmade materials and managing the vegetation to reduce its flammability. Vegetation management begins with correctly spacing plants to reduce fire risks to the home, and then by watering, pruning and thinning the vegetation regularly. The landscaping around a house in the WUI must be maintained. Defensible space reduces fire speed, intensity, and flame lengths, and limits the spread of a wildfire. This area is known as a fuel modification zone (FMZ), which is not to be confused with the limited building zone (LBZ). An FMZ is a protective buffer that surrounds a structure while an LBZ is a protective buffer that surrounds a biological open space area. The FMZ and LBZ may completely overlap, partially overlap or not touch at all (Figure 2).

Figure 2. ~~Fire~~-Fuel Modification Zone and Limited Building Zone



1.5 Defensible Structures

Wildfires are dangerous and unpredictable. In a wildfire event firefighting resources are often over-extended and may be unavailable. Defensible space alone does not always ensure the safety of structures confronted by a wildfire. Many additional precautions will assist in the survival of structures from wildland [fire](#) threats. The California Department of Forestry and Fire Protection ([CDF CAL FIRE](#)), County of San Diego, and local fire districts provide guidance on preparing structures for wildfire including roof and yard maintenance, landscaping and construction practices, and providing adequate emergency water supply and access.

1.6 Fire Agencies

The main entities that are responsible for ensuring the health and public safety in unincorporated area of San Diego County are the agency and fire protection districts (FPDs). The information below is provided in part by the Municipal Service Review & Sphere of Influence Update Study, by the Local Agency Formation Commission (LAFCO).

The enforcement responsibilities within [CDF CAL FIRE](#) and the FPDs are by any person designated by the FPD's Chief to exercise the powers and perform the duties of the fire ~~code official-prevention engineer~~ as set forth in their respective fire code as ratified by the Board of Supervisors. In the unincorporated areas of the County outside of a FPD, the enforcement responsibility lay with the person designated by the Chief Administrative Officer of San Diego County or his/her authorized representative.

California Department of Forestry and Fire Protection ([CDF CAL FIRE](#)) —[CDF CAL FIRE](#) is an emergency response and resource protection department that responds to more than 5,600 wildland fires that burn over 172,000 acres in the state each year. In addition, department personnel respond [on average](#) to more than 300,000 other emergency calls including structure fires, automobile accidents, medical aid, swift water

rescues, civil disturbance, search and rescue, floods, and earthquakes. [CDF-CAL FIRE](#) is the state's largest fire protection organization, whose fire protection team includes extensive ground forces, supported by a variety of fire-fighting equipment. [CDF-CAL FIRE](#) has joined with federal and local agencies to form a statewide mutual aid system. This system insures a rapid response of emergency equipment by being able to draw on all available resources regardless of jurisdiction.

Alpine Fire Protection District – Alpine FPD was formed on December 19, 1957, covers 27.5 square miles, and serves 17,500 residents. The District dedicated the new Station 17 located at 1364 Tavern Road on March 17th 2006. The design of this new 13,150 square foot facility incorporated 5,000 square feet for a 4 bay apparatus area and 8,150 to living space and office space for administration. The district has two Type I (structure fire engines), and one Type III (wildland fire engine), two command vehicles, two support/utility vehicles and a multi-casualty trailer. Additionally, station 17 also houses one Medic Unit provided by a joint operating agreement with American Medical Response (AMR), Grossmont Health Care District, and the County of San Diego.

Bonita-Sunnyside Fire Protection District – Formed in 1950 and reorganized in 1952, the Bonita/Sunnyside FPD provides fire protection, rescue, emergency medical services (paramedic Engine Company), community education, and prevention services to residents living in a 5.5 square mile area in the Sweetwater Valley, near the city of Chula Vista. Funding is provided through a combination of property taxes and a local benefit fee. Paramedic ambulance transport is provided through the Chula Vista Paramedic Exclusive Operating Area. Resident population is estimated at 15,966 (U.S. Census Bureau, tabulated by SANDAG).

Borrego Springs Fire Protection District – Formed in 1961, the District surrounds the community of Borrego Springs, encompassing an area of 305.5 square miles. The District provides structural and wildland fire suppression (though wildland fire protection is largely the responsibility of [the CDF-CAL FIRE](#)), fire prevention, rescue services, and ALS ambulance medical services from one station. Resident population is approximately 5,700 (SANDAG).

Deer Springs Fire Protection District – This District is located north of the City of Escondido, northeast of the City of San Marcos, and covers approximately 45 square miles. Established in December 1981, the District, [under a cooperative fire protection agreement with CAL FIRE](#), provides structural fire protection, rescue, Emergency Medical Service (EMS) with Emergency Medical Technicians (EMTs), inspection, and fire prevention programs from ~~two~~ three fire stations. Resident population is 11,137 (SANDAG). Advanced Life Support (ALS) ambulance service is provided through the Valley Center ALS Ambulance Service Area.

East County Fire Protection District – The East County FPD was formed on July 1, 1994, when the Bostonian and Crest FPD's were consolidated into one district. The consolidated District furnishes fire suppression, rescue, code compliance, emergency medical (Basic Life Support (BLS), transportation and paramedic engine company,

EMS, fire prevention, and community education. The District is funded through a combination of property taxes and local benefit fees. Paramedic Ambulance transportation is provided through County Service Area (CSA) 69. Resident population is estimated at 13,276 (U.S. Census Bureau, tabulated by SANDAG).

Julian-Cuyamaca Fire Protection District – This District encompasses approximately 81 square miles amid the mountains of eastern San Diego County. The District began operations in June of 1983 and provides structural and wildland fire suppression (though primary responsibility for wildfire remains wildland fire responsibility is largely under the CDF-CAL FIRE and USFS), ALS ambulance services, fire prevention, and rescue from two stations: one located in Julian and the other in Cuyamaca. The District also provides ALS ambulance service to Shelter Valley, Santa Ysabel and portions of the Highway 78 corridor. Resident population is 3,442 (SANDAG).

Lakeside Fire Protection District – The Lakeside Fire Protection District covers an area of approximately 55 square miles. The district provides structural and wildland fire suppression, emergency medical (paramedic engine company) and rescue services, as well as code compliance, public service, education, and safety programs. Paramedic ambulance transportation is provided through CSA 69. Resident population is estimated at 64,383 (U.S. Census Bureau, tabulated by SANDAG).

North County Fire Protection District – This FPD encompasses 92 square miles, including the communities of Fallbrook, Bonsall, and Rainbow in northern San Diego County, and serves a population of 49,108 (SANDAG). The District provides structural and wildland fire protection, (though wildland responsibility lies with the CDF-CAL FIRE), as well as paramedic first-responder and ambulance transport emergency medical services, rescue and fire prevention. The District operates from six stations. The District provides administrative support to the Rainbow Volunteer Fire Department (CSA), which became part of the District in 1986.

~~**Pauma Valley Municipal Water District (MWD)** – The Pauma Valley MWD encompasses 12,813 acres in the Pauma Valley area of northern San Diego County. The District has a joint powers agreement with the Mootamai and Pauma water districts to provide fire protection during the winter months through an Amador contract¹, when the CDF station located just west of the intersection of Highway 76 and Valley Center Rd would otherwise be closed. Through the Amador contract, the CDF provides structural fire protection, rescue and EMS, while ALS ambulance service is provided through the Valley Center ALS Ambulance Service Area.~~

¹ Amador Contracts vs. Full Service Cooperative Agreement Contracts: Amador contracts are cooperative agreements (Public Resources Code Section 4144) for areas where CDF-CAL FIRE already provides services during the "fire season." Amador contracts are where local governments pay CDF-CAL FIRE to provide service during non-fire season, as well, supplementing the local fire department. Full Service cooperative agreements (Public Resources Code 4142) means a county pays for CDF-CAL FIRE to become their fire department, year-round.

Pine Valley Fire Protection District – Encompassing approximately 75 square miles, the Pine Valley FPD is located in the unincorporated communities of Pine Valley and Guatay, along Interstate 8 in the eastern portion of San Diego County. The District, under a cooperative fire protection agreement with CAL FIRE, provides structural fire protection, emergency medical services, vehicle extrication and rescue to this area. The district also responds to wildland fires, though wildland fire protection within this area is predominantly the responsibility of the USFS and ~~the CDF~~ CAL FIRE. Paramedic ambulance transport is provided through the Grossmont Health Care District II. Resident population is estimated at 2,695 (U.S. Census Bureau, tabulated by SANDAG).

Ramona Municipal Water District – The Ramona MWD, located near the geographical center of the San Diego County, was formed on August 15, 1956, as a publicly-owned special district. The District provides water, sewer, fire protection, emergency medical services and park services to the public. The District's boundaries extend approximately 75 square miles, with an estimated current population of 35,000. The Fire Department was managed by the District until July 1, 1993, when the Board entered into an a cooperative fire protection agreement with the California Department of Forestry & Fire Protection (CDF CAL FIRE), to provide the fire and paramedic services. They operate out of three stations and provide EMT/ paramedic level service.

Rancho Santa Fe Fire Protection District – Formed in 1946, the Rancho Santa Fe FPD provides services to 24,409 (SANDAG) people living in a residential area of approximately 42 square miles, located between Interstates 5 and 15 north of San Diego's city limits. The District provides structural and wildland fire protection, (though primary responsibility for wildfire remains largely under CAL FIRE) wildland responsibility largely remains with the CDF, EMS (BLS and ALS first-response), rescue, prevention, and community education. The Department operates from four fire stations. ALS ambulance transport service is provided through CSA 17.

Rincon Del Diablo Municipal Water District – In 1976, Rincón Del Diablo MWD established Improvement District (10) "E" to provide fire protection, paramedic ambulance transport, and emergency services to residents within the MWD. Containing unincorporated areas to the east, south, and west of Escondido, services are provided by contract with the City of Escondido signed in 1984. The contract for services covers all of 10 "E" that is outside the city boundary.

San Diego Rural Fire Protection District – Formed on May 18, 1983, the San Diego Rural FPD consolidated 13 East County volunteer fire departments. They operate fourteen stations, of which three are full-time paid and eleven are volunteer staffed. The District, under a cooperative fire protection agreement with CAL FIRE, protects an area of approximately ~~690~~ 720 square miles and provides emergency medical services, structural fire protection and rescue services. The District also responds to wildland fires, though wildland fire protection within this area is predominantly-primarily the responsibility of ~~the CDF~~ CAL FIRE and USFS. Paramedic ambulance transport is

provided by the Grossmont Health Care District II. The population is estimated at 30,209 (SANDAG).

San Marcos Fire Protection District – The San Marcos FPD is a subsidiary district of the City of San Marcos and is governed by the City Council. The District encompasses 33 square miles, 24 of which lie within the San Marcos city limits. [As of March 2008](#), the District operates from four stations located throughout the City of San Marcos. Paramedic service is available from each station through the use of paramedic engine companies. The District also provides paramedic ambulance transport service. Estimated population is 78,206 (SANDAG).

San Miguel Consolidated Fire Protection District – Located east of the Cities of San Diego and Lemon Grove, south of the Cities of La Mesa and El Cajon, and west of the communities of Jamul and Crest, the San Miguel Consolidated FPD covers approximately 45 square miles of unincorporated territory and covers four square miles in the City of Lemon Grove. The FPD provides structural fire protection, wildland fire suppression, rescue and emergency medical services (paramedic engine company), code compliance, fire prevention and education to the communities of Spring Valley, Casa de Oro, La Presa, Grossmont/Mt. Helix, and Rancho San Diego. Paramedic ambulance transport is provided through the Grossmont Health Care District I. Resident population is estimated at 143,691. (U.S. Census Bureau, tabulated by SANDAG).

Valley Center Fire Protection District – The Valley Center FPD covers an area of 83 square miles in and around the community of Valley Center, north of the City of Escondido and east of interstate 15. [Under a cooperative fire protection agreement with CAL FIRE, the District provides structural and wildland fire suppression, though wildland fire responsibility remains with the CDF \(though primary responsibility for wildfire remains largely under CAL FIRE](#), and EMS, with service provided to the District from two stations. Ambulance service is provided through the Valley Center ALS Ambulance Service Area. Population is 14,657 (SANDAG).

Vista Fire Protection District (VFPD)– Fire protection to the VFPD area was initially provided by the all-volunteer Vista Rural Fire Protection District [formed](#) in 1928. The VFPD was adopted by the San Diego County Board of Supervisors on July 14, 1944. In 1963 when the City of Vista incorporated it removed 12 square miles from the district with the two entities sharing pro rata costs. The VFPD was set up to serve both agencies equally. In 2005 a new contract was signed which brought all assets under one roof. The VFPD covers approximately [46.9 19](#) square miles and a population of 11,105 (SANDAG). The service area of the Vista City Fire Department, including both the City and the District, is approximately [28.9 38](#) square miles and serves a population of 112,000 residents. The City of Vista Fire Department has four stations, and is building two new station to open in 2008. It also provides paramedic ambulances transport services within the City and District.

Yuima Municipal Water District, Mootamai Municipal Water District and Pauma Municipal Water District - Currently (and since 1971 have) contracted under their Joint Powers Authority with the California Department of Forestry and Fire Protection (CAL FIRE) to provide fire protection services to the community of Pauma Valley. Currently under an Amador Plan to provide fire protection services during the winter months when CAL FIRE's Rincon Station would otherwise be closed, they now year-round fire protection services. Under a contract with San Diego County, a higher level of service is provided by CAL FIRE with the County paying the cost for the higher service level.

Yuima Municipal Water District covers 21.02 square miles or 13,452.8 acres serving a population of approximately 1,870.

Mootamai Municipal Water District covers 659 acres and serves a population of approximately 308.

Pauma Municipal Water District covers 4,323 acres and serves a population of approximately 150.

1.7 County Service Areas

County Service Areas (CSAs) are organized under the authority of the Board of Supervisors to provide a level of emergency response within a defined jurisdictional boundary by using volunteers. CSAs have defined boundaries and most participate in the Fire Mitigation Fee program, which funds facilities and equipment, but the CSAs lack the authority to adopt a fire code or provide official response to planning and building projects. The current CSA's located within the County include the following:

- Boulevard (#111)
- Campo (#112)
- Elfin Forest (#107)
- Mount Laguna (#109)
- Palomar Mountain (#110)
- Pepper Drive (#115)
- ~~Palomar Mountain (#110)~~
- San Pasqual (#113)

2.0 EXISTING REGULATIONS AND STANDARDS

A number of existing laws, regulations, policies and programs have been enacted to prevent, manage or mitigate the threat of wildland fires to public health, safety and the environment. The following discussion is an overview of the primary existing regulations that affect wildland fire in San Diego County. The regulations discussed below have been chosen for their applicability to the typical development project encountered in San Diego County and for their usefulness in assessing potential adverse project impacts as defined by the California Environmental Quality Act (CEQA), focusing on the threat these fires would pose to people or structures.

2.1 Federal Regulations and Nationally Recognized Standards

[[Regulation]]

National Environmental Policy Act as amended [Pub. L. 91-190, 42 U.S.C. 4321-4347, January 1, 1970, as amended by Pub. L. 94-52, July 3, 1975, Pub. L. 94-83, August 9, 1975, and Pub. L. 97-258, § 4(b), Sept. 13, 1982). <http://www4.cornell.edu/uscode/42/ch55.html>] Federal agencies that implement the National Environmental Policy Act (NEPA) consider potential public health and safety hazards including wildland fires when considering the environmental impacts of proposed federal projects

[[Nationally Recognized Standard]]

International Fire Code [2006 edition] published by the International Code Council, is a model code which may be adopted by a jurisdiction. It forms the basis for the current California Fire Code (CCR Title 24 part 9) The International Fire Code (IFC) is the underlying nationally recognized code that sets standards and requirements to safeguard against the threat fires may pose to public health, safety, and the environment. The IFC, when adopted by a jurisdiction, regulates the planning, construction and maintenance of development in all areas.

[[Nationally Recognized Standard]]

International Wildland-Urban Interface Code [2006 edition] published by the International Code Council, is a model code addressing wildfire issues. It has not been adopted by the State of California, or by the County of San Diego. It may be used as a reference for subjects not addressed within the California and County Fire Codes. The County Building Code incorporates construction requirements for wildland areas in Chapter 7A, which are more restrictive than the California Building Code. Prior County construction standards for wildland areas formed much of the basis for the new State Building Code Chapter 7A.

[[Nationally Recognized Standard]]

~~**Uniform Fire Code** [2000 edition published by the Western Fire Chiefs Association and the International Conference of Building Officials, is a consensus model code which may be adopted by a jurisdiction. It forms the basis for the current California Fire Code (CCR Title 24 part 9)] The Uniform Fire Code (UFC) is the underlying nationally recognized consensus code that sets standards and requirements to safeguard against the threat wildland fires may pose to public health, safety, and the environment. The~~

~~UFC, when adopted by a jurisdiction, regulates the planning, construction and maintenance of development near wildland areas. The UFC in combination with the California Building Code (CBC), National Electric Code (NEC), Uniform Mechanical Code (UMC), and Uniform Plumbing Code (UPC) set uniform building, electrical, mechanical, and plumbing standards that collectively aim to reduce the threat of wildland fires to people or structures. The Fire Agency Having Jurisdiction (FAHJ) is primarily responsible for ensuring conformance to the Uniform Fire Code.~~

[[Nationally Recognized Standard]]

National Fire Code (<http://nfpa.org/codes/index.asp>) The National Fire Codes and NFPA Standards are a product of the National Fire Protection Association (NFPA), a world-wide organization of fire industry, fire agencies, fire professionals and concerned individuals. These model codes are annually compiled from the codes, standards, recommended practices, manuals, guides, and model laws that are prepared by the individual technical committees of the NFPA. Most are revised on a three-year cycle. The published code amendments are voted on by the members of the NFPA. The individual codes are in many cases adopted by jurisdictions, or modified and adopted as that jurisdiction's ordinance.

2.2 State Regulations and Standards

[[Regulation]]

California Environmental Quality Act Guidelines [Public Resources Code 21000-21178; California Code of Regulations, Guidelines for Implementation of CEQA, Appendix G, Title 14, Chapter 3, §15000-15387.] Consideration of impacts relating to wildland fires is required by CEQA. The CEQA Guidelines are concerned with assessing impacts associated with exposing people or structures to wildland fires.

[[Regulation]]

California Building and Fire Codes [California Code of Regulations, Title 24 parts 2 & 9, <http://osfm.fire.ca.gov/>] Title 24 contains several ~~Uniform-International~~ Codes that address fire safety including the ~~Uniform-International~~ Fire Code, ~~Uniform-International~~ Building Code. Additional safety regulations adopted by the California Building Standards Commission include the Uniform Mechanical Code, and Uniform Plumbing Code, which are also part of the California Code of Regulations. ~~The Uniform Fire Code was assembled with the Uniform Fire Code of the Western Fire Chiefs Association, above, and modified California Building Standards Commission.~~

[[Regulation]]

California Code of Regulations Title 14 (**Fire Safe Regulations**) also contains regulations that have been prepared and adopted for the purpose of establishing minimum wildfire protection standards in conjunction with building construction and development in the State Responsibility Area (SRA). Over 90 percent of the unincorporated area of the County is located within the SRA.

2.3 Local Regulations and Standards

[[Regulation]]

County of San Diego Building and County of San Diego Fire Code s (Title 9, Divisions 1, 2 and 6, San Diego County Code of Regulatory Ordinances) ~~[Chapter 3 of Division 5 of Title 3 of the San Diego County Code of Regulatory Ordinances) and County Building Code (Title 5, Section 51.0001 et al)]~~ Following the October 2003 and fall 2007 wildfires, assessments were made of damaged and destroyed homes in an effort to identify areas where codes could be strengthened in order to enhance the chances of a structure surviving a wildfire. As a result, in ~~June 2004~~ February 2008, the County further amended the Fire Code and Building Code to include strengthened two-tiered ignition-resistive construction requirements, modifying the previous two-tiered system and requiring “enhanced” standards ~~(basic and enhanced)~~ for all new construction.

[[Regulation]]

~~**County of San Diego Consolidated Fire Code** [County Health and Safety Code §13869.7. Includes Ordinances of the 17 Fire Protection Districts as Ratified by the San Diego County Board of Supervisors, First Edition, October 17, 2001 and Amendments to the Fire Code portion of the State Building Standards Code, 1998 Edition. The County of San Diego is unique within the State of California in having 17 fire protection districts within its boundaries. For the purposes of prescribing regulations in the unincorporated area of the County of San Diego, the applicable fire code is known as the County Fire Code and includes the Consolidated Fire Code and adopts by reference the California Fire Code, 2001 edition (CCR T-24 part 9). The Consolidated Fire Code consists of local fire protection district ordinances. The purpose of the Code is for the protection of the public health and safety which includes permit and inspection requirements for the installation, alteration or repair of new and existing fire protection systems, and penalties for violations of the code. The Code provides the minimum requirements for access, water supply and distribution, construction type, fire protection systems and vegetation management. Additionally, the fire code regulates hazardous materials and associated measures to ensure that public health and safety is protected from incidents relating to hazardous substance releases.~~

Memorandum of Understanding [Agreement Between United States Fish and Wildlife Service (USFWS), California Department of Fish and Game (CDFG), California Department of Forestry and Fire Protection ([CDF CAL FIRE](#)), San Diego County Fire Chief’s Association and the Fire District’s Association of San Diego County (<http://www.sdcounty.ca.gov/dplu/Resource/docs/3~pdf/MemoofUnder.pdf>). The MOU was created to establish guidelines by which fire agencies can continue to require abatement of flammable vegetation without violating environmental regulations for the protection of habitats and species.

[[Regulation]]

Combustible Vegetation and Other Flammable Materials Ordinance [San Diego County Code of Regulatory Ordinances, Title 6 Health and Sanitation, Division 8

Sewage and Refuse Disposal, Chapter 4 Abatement of Weeds and Rubbish, <http://www.amlegal.com>] This ordinance addresses the accumulation of weeds, rubbish, and other materials on a private property found to create a fire hazard and be injurious to the health, safety, and general welfare of the public. The ordinance constitutes the presence of such weeds, rubbish, and other materials as a public nuisance, which must be abated in accordance with the provisions of this chapter.

Local Fire Agencies' Ordinances. Certain codes like the Fire and Building codes can be amended to be more restrictive based upon local climatic, geological and topographical features that can have a significant effect on fire protection and emergency services. These amendments are based upon fire agencies findings and local conditions within the County of San Diego (See Section 1.6 for a list of fire agencies within the County of San Diego). [Local fire district fire codes must be ratified by the Board of Supervisors before they become effective.](#)

3.0 TYPICAL ADVERSE EFFECTS

Generally, two types of adverse effects are typically associated with wildland fires; the immediate effects that occur during a wildland fire event and the effects that occur in the aftermath. During a wildfire event, people and structures are exposed to risk of loss, injury or death. Assessing and ranking the level of risk is always relative; unwise human action, for example, could be life-threatening even with all other factors at reasonable levels.

Since the level and type of risk can vary from project to project, prioritizing the project deficiencies (or combination of deficiencies) that create the biggest risk is difficult. In general, however, the following circumstances can result in increased fire related risks to people and structures:

- Projects located adjacent to and within the WUI and/or that incorporate large open space preserves within the project design;
- High population and density in the WUI;
- Responses of people during a wildland fire event (human behavior);
- Emergency response services (fire stations, equipment and personnel) are inadequate to serve the project;
- Development projects that are built without ignition-resistive construction, interior fire sprinklers, and/or sufficient water supply (volume) and pressure; and
- Inadequate access, maintenance of landscaping restrictions, FMZs, and periodic fuel management.

Another less obvious effect of wildfire events is the loss or permanent change of natural resources. Since prehistoric times wildfires have been a part of the San Diego landscape; however, increased human habitation and use of the County's wildlands has increased the frequency of wildfire incidents, which adversely affects the County's diverse resources.

At the same time, fire suppression activities have resulted in older stands of native fuel, with a greater percentage dead, combustible material. When these old stands do burn, especially in a Santa Ana wind event, they burn far hotter and more destructively. These less-frequent, hotter, uncontrolled fires result in a loss of natural resources, including type-conversion, as experienced in Cuyamaca State Park.

Although wildfires are considered a natural process necessary to the functioning of many ecosystems, a wildfire's aftermath typically leaves land scorched and exposed. Until the land rehabilitates, the exposed soils may contribute to adverse environmental impacts including air and water pollution and unstable soils conditions (mudslides). The end result of uncontrolled wildfire also includes debris from burned homes, some of which can be highly toxic, and can adversely impact the environment by polluting local waterways (streams and rivers).

4.0 GUIDELINES FOR DETERMINING SIGNIFICANCE

Section 15382 of the State CEQA Guidelines states that a significant effect on the environment means a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project including land, air and water. **An affirmative response to or confirmation of any one of the following Guidelines will generally be considered a significant impact related to Wildland Fire and Fire Protection as a result of project implementation, in the absence of scientific evidence to the contrary:**

- 1. The project cannot demonstrate compliance, or offer Same Practical Effect², with applicable fire regulations, including but not limited to the California Fire Code, California Code of Regulations, County Fire Code, or the County Consolidated Fire Code.***
- 2. A comprehensive Fire Protection Plan has been required and the project is inconsistent with its recommendations including fuel modification.***

² "Same Practical Effect" as defined under California Code of Regulations, Title 14, Section 1271.00 (Definitions), and as used in these guidelines, means an exception or alternative with the capability of applying accepted wildland fire suppression strategies and tactics, and provisions for fire fighter safety, including access for emergency wildland fire equipment, safe civilian evacuation, signing to avoid delays, available and accessible water to effectively attack wildfire or defend a structure from wildfire, and fuel modification sufficient for civilian and fire fighter safety.

3. The project cannot meet the emergency response objectives identified in the Public Facilities Element of the County General Plan or offer Same Practical Effect.

The significance guidelines listed above have been selected for the following reasons:

The **first** guideline for determining significance is based on compliance with existing wildland fire regulations. Since the applicable regulatory requirements for a project will differ based on use type and extent of the WUI, all discretionary projects are required to prepare a Fire Protection Plan (FPP) designed to assess a project's compliance with current regulatory codes and ensure that impacts resulting from wildland fire hazards have been adequately mitigated.

The FPP is similar in concept to a Technical Report as authorized in the Fire and Building Codes. The FPP and is prepared by a wildland fire behavior and fire code expert for review by the County and FAHJ. A Technical Report, which focuses on fire code issues for a specific industrial, commercial or special risk occupancy, shall accompany a FPP if a complex fire code issue makes it necessary. A Technical Report should be separate from, yet coordinate with, related provisions of the FPP. The County DPLU maintains a list of persons currently authorized to prepare FPPs for projects within its jurisdiction.

The authority to require FPP can be found under Chapter 47 of the California Fire Code, and Section 4703 of the County Fire Code.~~Article 86.~~

Examples of regulatory requirements that a project will be required to meet include the California Fire Code, County of San Diego ~~Consolidated~~ Fire Code and the standards outlined in Section 5 of this chapter. Given the complexity of wildland fire regulation and the numerous agencies that have regulatory enforcement responsibility over projects that deal with wildland fires, applicable regulations will be determined on a project-by-project basis. Due to the potential severity of impacts from fire in wildland areas, the existing laws are stringent and regulate all aspects of wildland fire and their hazards including building standards, fuel modification, water availability/flow, and access or demonstrated same practical effect. Any project that does not show compliance with regulatory codes or does not include a valid risk assessment for the project site may result in a potentially significant impact of wildland fire hazard.

The **second** guideline applies to all projects that are required to model fire behavior in climax vegetation on and near the site ~~conduct a Fire Fuel Assessment~~ (Fire Behavior Modeling) as part of its Fire Protection Plan. The Fire Behavior Model will evaluate a worst-case scenario wildland fire event based on site topography, fuel loads, atmospheric conditions, and fire intensity. maximum heat production. From the results of the model, combined with the consultant's expertise, minimum fuel modification and brush clearance distances can be determined to ensure relatively safe building sites. These fuel-modeling programs are widely accepted and used throughout the fire fighting profession as a planning tool. moreover, The models are were developed by expert fire- research scientists, but do not provide a total analysis of the threat. Modeling program limitations

must be taken into consideration. ~~modeling professionals.~~ However, Fire history and professional experience may require greater or lesser requirements for individual projects, and such justification should be clearly articulated in the FPP.

The fire model gives general guidance and typically calculates average behavior over time. Any project that would not be consistent with the consultant/fire authority's recommendations based on the Fire Behavior Modeling, fire history, and personal experience or expertise for that site (after review and approval) may result in a potentially significant impact and may present significant risk of loss, injury or death.

The **third** guideline for determining significance is based on the need to have adequate fire services available in order to provide sufficient emergency response in the event of a wildfire or other emergency. Applicants are required to obtain a Project Facility Availability Form (DPLU Form #399F) that is completed and signed by the FAHJ prior to formally submitting the application to the County. The FAHJ will review the project and determine whether existing fire services are adequate to serve the project. A Project Facility Availability Form that shows that a project is not located within the fire district boundaries and eligible for service, does not meet the travel time requirements specified under the County's Facilities Element, is unable to implement the required FMZ, or is unable to provide adequate water flow and pressure may result in a potentially significant impact and may present significant risk of loss, injury or death. Travel time is determined by measuring the most direct reliable route with consideration given to safe operating speeds for heavy fire apparatus. Travel time does not include reflex or reaction time, or on-scene size-up and set-up prior to attacking the fire, all of which are critical precursors of actual fire fighting. Travel time may be calculated by using NFPA 1142 Table C.1.11(b), SANDAG layering, DPLU-GIS software travel time mapping, actual emergency travel time run data, or actual driving tests using fire apparatus. In no instance shall the methods proposed by the FPP preparer to determine travel time supersede the travel time as ultimately determined by the FAHJ and PAHJ.

5.0 STANDARD MITIGATION AND PROJECT DESIGN CONSIDERATIONS

To effectively mitigate wildland fire hazards in Southern California, a multi-lateral approach that involves Federal, State, and local governments and fire agencies is usually necessary. Collectively, the County and fire agencies work together to prevent the loss of life in wildland fires; prevent the ignition of structures by wildland fires; prevent the encroachment of wildland fire upon communities; prevent a wildland-caused structural conflagration; prevent the spread of a structure fire to the wildland; and to limit the size of wildland fires.

Wildland fire mitigation measures and design considerations used in the planning and land use approval process vary depending on the wildland characteristics of the site and surrounding area. In order to allow this flexibility in project design, many wildland fire regulations are written using language that is often subject to interpretation (e.g. water supply may consist of reservoirs, pressure tanks, elevated tanks, water mains or other fixed systems "secondary access may be required in the following circumstances...") as

opposed to codes that are absolute (e.g. “Class “A” roofing material shall be required”). This may allow some projects with unique geographic and topographic conditions to adequately mitigate wildland fire risks through project design.

Under circumstances where alternatives are proposed, mitigation must be justified in terms of “same practical effect” for CCR Title 14 regulations, and/or consistent with Appendix Chapter 1, section 104.8 of the California Fire Code. Documentation of mitigation must appear not only in the FPP but also in the files of the FAHJ in the manner prescribed in the Fire Code.

In order to determine whether a project has adequately mitigated for impacts resulting from wildland fire hazards, discretionary projects are required to submit a Fire Protection Plan (FPP). The FPP, at a minimum, must determine that the project is consistent with the intent of the applicable fire regulations relating to unique problems of site location, site topography, geology, and flammable vegetation, as relates to the following areas:

- Emergency Services - Availability and Travel Time;
- Access (primary and, if required, secondary);
- Firefighting Water Supply;
- Fire Sprinkler System;
- Ignition Resistant Construction; and,
- Defensible Space, Ornamental Landscaping and Vegetation Management

Each of these design considerations is detailed below and includes discussions on relevant Federal, State and local codes and the standards that are used to ensure compliance with the regulations. Failure to comply with either the fire code/regulations or the standards may result in a potentially significant impact.

5.1 Emergency Services

Fire protection and emergency services are among the most vital and basic of community needs. Firefighters, who are generally the first responders to disasters, must be prepared to respond quickly and effectively to all types of emergencies, including wildland fires. For this reason, the provision of adequate facilities for fire protection and emergency services is fundamental to protecting the health, safety and general welfare of the residents of San Diego County.

5.1.1 Emergency Fire Response

5.1.1.1 Applicable Codes/Regulations

Part XII of the San Diego County General Plan (Public Facilities Element), Section 11 – 1: Fire Protection and Emergency Services.

Prior to approval of a project, a finding must be made that sufficient fire protection is available or will be available concurrent with the need for all discretionary projects. The

finding will be based on meeting the emergency travel times listed in Table 1 and the requirements and information from the responsible fire agency. If the appropriate emergency travel time cannot be met for a proposed discretionary project, the project will be denied unless sufficient mitigation measures are included as a basis of approval based on the recommendations of the Director of Planning and Land Use and the Fire Authority Having Jurisdiction (FAHJ).

Table 1
Emergency Response Travel Times

LAND USE CATEGORY	MAXIMUM TRAVEL TIME	LAND USE CATEGORY DEFINED
Town	5 minutes	Single-family residential lots of less than two acres, or more intensive uses such as multi-family residential. Includes all industrial development and all commercial development except neighborhood commercial
Estate	10 minutes	Single-family residential lots from two to four acres in size. Includes neighborhood commercial development.
Rural	20 minutes	Large lot single-family residential and agricultural development. Lot sizes of greater than four acres.

5.1.1.2 Applied Standards

Projects must comply with the emergency travel time requirements specified in the General Plan. Travel time is defined as the estimated time it will take for a responding fire station General Plan. Travel time is defined as the estimated time it will take for a responding agency to reach the furthest structure in a proposed development project. Travel time is determined by measuring the most direct reliable route with consideration given to safe operating speeds for heavy fire apparatus. Travel time does not include reflex or reaction time, or on-scene size-up and set-up prior to attacking the fire, all of which are critical precursors of actual fire fighting. Travel time may be calculated by using NFPA 1142 Table C.1.11(b), SANDAG layering, DPLU-GIS software travel time mapping, actual emergency travel time run data or actual driving tests. In no instance shall the methods to determine travel time proposed by the FPP preparer supersede the travel time determined by the FAHJ.

NOTE: Stations that are seasonal (not open all year), or are volunteer fire companies without legal responsibility to respond to emergencies, are not considered to meet the travel time requirements of the General Plan.

Where projects exceed these time requirements, the Director of Planning and Land Use may, upon concurrence with the FAHJ, accept mitigation measures. Acceptable mitigation includes, but is not limited to:

- Alternative construction methods and measures not otherwise required;
- Automatic Aid agreement;
- ~~Mutual or automatic aid~~;
- Upgrading existing facilities or infrastructure;
- Constructing new facilities; or
- Implementing a long-term binding agreement aimed at reducing the response time to acceptable limits, or intensified fire protection offering same practical effect.

Proposed mitigation must be implemented prior to final approval of the discretionary permit (prior to recordation of the final map for subdivisions and prior to issuance of building permits for use permits/site plans).

5.2 Emergency Fire Access Roads

~~Experience has shown that d~~Developments with inadequate access (e.g. long roads with a single access point, roads over steep grades, improper road surfaces, and/or narrow roads) significantly contribute to the inability to effectively evacuate residents during a disaster (wildfire, earthquake, or flood) or provide necessary emergency access for fire, ambulance, or law enforcement personnel.

5.2.1 Emergency Secondary Access Required

5.2.1.1 Applicable Codes/Regulations

California Code of Regulations, Title 14, Section 1273.09 (Dead-End Roads); [[applies to State Responsibility Areas - SRA]]

The maximum length of a dead-end road, regardless of the number of parcels served shall be as follows:

Lots zoned for less than 1 acre:	800 feet
Lots zoned for 1 acre to 4.99 acres:	1,320 feet
Lots zoned for 5 acres to 19.99 acres:	2,640 feet
Lots zoned for 20 acres or larger:	5,280 feet

The above lengths shall be measured from the edge of the roadway surface at the intersection that begins the access route to the end of the road surface at its farthest point(s) and include all dead end roads accessed from the dead end road. Where the access road crosses areas of differing zoned lot sizes, the shortest allowable length shall apply.

California Code of Regulations, Title 14, Section 1271.00 (Definitions); [[applies to State Responsibility Areas - SRA]]

“Same Practical Effect”: as used in this chapter, means an exception or alternative with the capability of applying accepted wildland fire suppression strategies and tactics, and provisions for fire fighter safety, including access for emergency wildland fire equipment and safe civilian evacuation, signage to avoid delays, available and accessible water to effectively attack wildfire or defend a structure from wildfire, and fuel modification sufficient for civilian and fire fighter safety.

County Fire Code Section SEC. 96.1.503. Fire Apparatus Access Roads
[Note: not limited to State Responsibility Areas]

Sec. 503.1.2 Secondary access. One or more means of secondary access to a project, development or area shall be required for emergency operations and/or evacuation when the length of a dead-end road, including all dead-end roads accessed from that dead-end road, exceeds the cumulative length standards established by this chapter. The standards are as follows:

<u>ZONING FOR PARCEL SERVICED</u> <u>BY DEAD END ROAD(s)</u>	<u>CUMULATIVE LENGTH</u> <u>OF DEAD END ROAD(s)</u>
<u>Parcels zoned for less than 1 acre</u>	<u>800 feet</u>
<u>Parcels zoned for 1 acre to 4.99 acres</u>	<u>1,320 feet</u>
<u>Parcels zoned for 5 acres to 19.99 acres</u>	<u>2,640 feet</u>
<u>Parcels zoned for 20 acres or larger</u>	<u>5,280 feet</u>

All lengths shall be measured from the edge of the roadway surface at the intersection where the road begins to the end of the road surface at its farthest point. Where a dead-end road crosses areas of differing zoned parcel sizes, subject to different length standards, the shortest standard shall apply. Secondary access shall be as far as possible from the primary access and shall comply with sections 503.1 through 503.6.

The fire code official may modify the requirements of this section in an individual case when the criteria in Appendix Chapter 1, section 104.8 have been met and the modification will fulfill the intent of this section.

902.2.2.8 Secondary Access [[not limited to SRA]]

~~The Chief may require one or more secondary means of access to a project development or area where he deems that such access is necessary for emergency operations and/or evacuation. The maximum length of a dead-end road, including all dead-end roads accessed from that dead-end road, shall not exceed the following cumulative lengths, regardless of the number of parcels served:~~

Parcels zoned for less than 1 acre	800 feet
Parcels zoned for 1 acre to 4.99 acres	1,320 feet
Parcels zoned for 5 acres to 19.99 acres	2,640 feet

~~Parcels zoned for 20 acres or larger ————— 5,280 feet~~

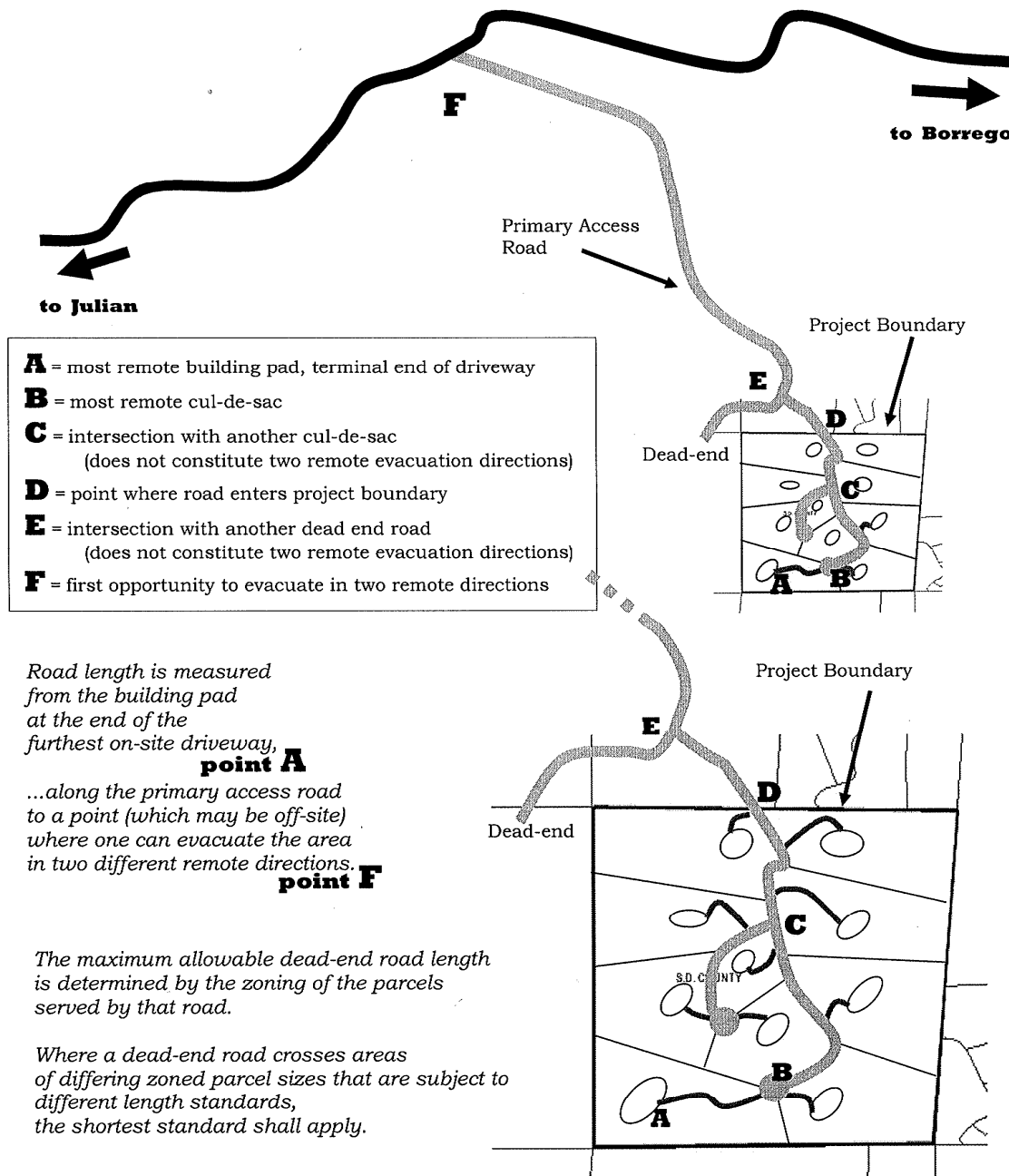
~~These requirements may be modified when in the opinion of the Chief condition warrant. All lengths shall be measured from the edge of the roadway surface at the intersection that begins the road to the end of the road surface at its farthest point. Where a dead-end road crosses areas of differing zoned parcel sizes, requiring different length limits, the shortest allowable length shall apply.~~

~~Secondary access must be remote from the primary access, and must meet all provisions of this Section.~~

5.2.1.2 Applied Standards

Road length shall be measured from the beginning of the primary access road at a point where one can evacuate in two different remote directions (which may be off-site), measured to the building pad at the end of the furthest on-site driveway. Refer to Figure 3 for guidance on measuring primary access road length.

Figure 3
Guidance for Determining Primary Access Road Length



It is the intent of this requirement to provide emergency access that is safe and separate from the primary access, and to provides a reliable alternative means of egress for residents during a fire event. Residents and others must be able to use the evacuation route without intervention (e.g. unlocking a gate) by any other person. Except as provided below, all discretionary projects shall provide a second route of access when the above distance thresholds are exceeded. The request for exception to secondary access requirements must address topographic, geological, and environmental conditions that make meeting the regulation unattainable and must demonstrate the “same overall practical effect” as the regulation. ~~demonstrate the same overall practical effect as the regulation, and must address topographic, geological, and environmental conditions which make meeting the regulation unattainable.~~

The proposed mitigation measures must be appropriate to the hazard and to the extent to which the standard is exceeded. The following examples may be acceptable under ideal circumstances:

- Primary Road is Significantly Improved. The primary road that is used to access the project is improved in order to provide sufficient access to, and evacuation/relocation from, the project during a fire, and which results in the “same practical effect”. Examples of mitigation factors acceptable under some circumstances:
 - Several long driveways that exceed the maximum prescribed length which are served from a cul de sac which does meet the requirement - For “same practical effect”: provide widening of the driveways, vehicle turnouts per Title 14, and additional vegetation management along driveway.
 - Primary access exceeds allowable length by a small percentage – For “same practical effect”: provide widening of the primary access, additional hydrant coverage, and additional vegetation management along the road.
- Secondary Access Can be Provided, but Cannot Meet Road Standards or Full Access Rights. Where it is impossible to provide secondary access in full compliance with the County Fire Code (including required width, grade, turning radius, and similar constraints), or where easement rights are restricted, the County may consider slight deviations from the minimums identified in the standards if the deviations provide the same practical effect. Examples of mitigation factors acceptable under some circumstances:
 - Where secondary access can be provided, but topographic constraints prevent widening to full code width, mitigation may include providing additional vegetation management along primary and secondary access routes, widening access roads where topographic constraints are not present, and providing clear posting as FIRE LANE.
 - Where secondary access meets fire code standards except persons in control of secondary access will not grant full access rights, mitigation may include providing an automatic gate that restricts entry into the project from the secondary access point, but that allows immediate egress at all

times in case of emergency as perceived by the individual evacuating, without intervention by others. The gate would have to allow ingress and egress by emergency personnel at all times without intervention by others as required by the County Fire Code. This situation would generally require an agreement (access easement) between property owners to allow limited use of the secondary access route.

- Shelter-in-Place Strategy. In the event secondary access for a new proposed community or institution (e.g. school or organized camp) is unattainable due to topographical or geographical constraints, a Shelter-in-Place design strategy may be considered for the proposed project. **Shelter-in-Place is an alternative last resort design concept with relocation (evacuation) of residents to a safe location being the preferred action.** All of the following minimum design standards must be implemented in order to qualify for consideration of a Shelter-in-Place concept. Additional standards, or modification to the standards below, may be required by the FAHJ or the Director of Planning and Land Use in order to achieve a same practical effect.
 - The primary access roadway must meet minimum fire code requirements (in terms of width, paving, posting, etc.), and have no potential constraints or bottlenecks on or off-site until it reaches two directions of egress from the area;
 - All structures within the entire proposed project, regardless of distance to property line or WUI area, must be built using Enhanced Ignition Resistant Construction (County ~~Fire and~~ Building Codes);
 - The project must be designed with adequate and properly managed Fuel Modification Zones which may ~~be require~~ as much as four times the calculated flame length, and properly maintained ornamental landscaping consistent with the County's "Fire, Defensible Space and You..." (County of San Diego 2004; Internet link http://www.sdcounty.ca.gov/dplu/fire_resistant.html): ~~County of San Diego - Dept. of Planning and Land Use - Fire, Defensible Space and You ...~~). A funding mechanism must be implemented to ensure fire agency enforcement staffing in perpetuity;
 - The developer provides evidence that resources exist to adequately and consistently enforce weed abatement/fuel management regulations for the life of the project (a funding mechanism must be implemented to ensure fire agency enforcement staffing in perpetuity);
 - The developer provides evidence that resources exist to provide substantial and effective annual public outreach to educate residents on fire safety and emergency response for the life of the

project (a funding mechanism must be implemented to ensure fire agency public education staffing in perpetuity);

- The extent to which any flammable vegetation/habitat areas is proposed within a shelter-in-place development must be carefully studied and evaluated as part of the FPP; and,
- The primary access road must have adequate vegetation clearance that may be as much as twice the calculated flame length.

5.2.2 Fire Access Road Width

5.2.2.1 Applicable Code/Regulations

Public/Private Road Standards and County Fire Code, Section [902.2.2.1 96.1.503](#)

[Fire apparatus](#) access roads shall be improved to a minimum of 24 feet, except for driveways serving no more than two dwellings shall have a minimum of 16 feet of improved width. Exception: Upon approval by the Fire Chief, the minimum width may be reduced, provided that the reduction does not impair access by fire apparatus.

5.2.2.2 Applied Standards

[The minimum width identified above shall not be obstructed at any time. Parking must be outside the required fire access road width.](#) An exception to the standard [width](#) requirement may be allowed for a short section where extreme topographic constraints make it impossible to obtain the minimum required width. [This finding must be supported by in the opinion of the Director of Public Works, and the FAHJ and the County Fire Marshal on the basis and the County Fire Marshal on the basis because](#) of extreme topographic constraints.

5.2.3 Fire Access Road Grade

5.2.3.1 Applicable Code/Regulations

County Fire Code Section [902.2.2.6 503.2.7](#)

The gradient for a fire apparatus access roadway shall not exceed 20.0%. Grades exceeding 15.0% (incline or decline) shall not be permitted without mitigation. Minimal mitigation shall be the installation of fire sprinkler systems or a surface of Portland cement concrete (PCC), with a deep broom finish, perpendicular to the direction of travel to enhance traction. The Chief may require additional mitigation measures where he deems appropriate. The angle of departure and angle of approach of a fire access roadway shall not exceed seven degrees (12%) or as approved by the Chief.

5.2.3.2 Applied Standards

The maximum grade allowed by CCR T-14 section 1273.03 is 16% without mitigation. The regulation allows for exceptions at section 1270.07 where the exception provides the same overall practical effect as the regulation. Fire sprinkler systems, required by the code for all structures in wildland areas, act as a one mitigating factor.

Exceptions would be considered where full compliance with the standard could not be achieved because of extremely steep terrain. ~~An~~Example of an exception would include be a short (e.g. 100 feet) section of no-slightly more than 20% grade, permitted where the road is relatively straight before, during and after the exception, line-of-sight is maintained, and fire engine speed can be expected to be maintained. ~~It should be noted that t~~The grade requirement is based on the potential for fire hose or other equipment to be spilled out of the engine because of extremes in grade.

5.2.4 Fire Access Road Surface Type

5.2.4.1 Applicable Code/Regulations

County Fire Code Sec. 503.2.3 ~~902.2.2.2~~ and Sec. ~~902.2.2.2.2~~ SURFACE.

Fire apparatus access roads shall be designed and maintained to support the imposed loads of fire apparatus (not less than 50,000 lbs.) and shall be provided with an approved surface so as to provide all-weather driving capabilities.

For driveways serving individual single-family dwellings the minimum surfacing materials required shall vary with the slope of the fire apparatus access road as follows:

0-10% Slope	4" Decomposed Granite
11-14% Slope	2" Asphaltic Concrete
15-20% Slope	3" Asphaltic Concrete

The paving and sub-base shall be installed to the standards specified in Section I-M of the County of San Diego Off-street Parking Design Manual. (<http://www.co.san-diego.ca.us/cnty/cntydepts/landuse/planning/zoning/ospdman.pdf>).

A residential driveway constructed of 3½" Portland cement concrete may be installed on any slope up to 20% provided slopes over 15% have a deep broom finish perpendicular to the direction of travel to enhance traction.

5.2.4.2 Applied Standards

Full compliance with the code.

5.3 Water

Providing adequate water supply, volume and pressure, is crucial in fighting not only wildland fires, but smaller scale residential fires as well. History has shown that most fire related responses are to residential fires. In some cases, however, residential fires escape the confines of the house and become wildfires. As such, it is important that water resources are adequate to meet the volume and flow needs to properly fight fires either at an individual home or the surrounding neighborhood. [A municipal water supply \(waterlines and hydrants\) is always preferable to on-site tanks.](#)

5.3.1 Inside Water District

5.3.1.1 Applicable Code/Regulations

[Sec. ~~903.4.2.1~~ 508.5.2.1 .Waterline Extensions](#)
(<http://www.co.sandiego.ca.us/dplu/docs/firecode.pdf>)

The [Chieffire code official](#) ~~fire code official~~ may require a waterline extension for the purpose of installing a fire hydrant if the water main is 1,500 feet or more from the property line.

[Sec. ~~903.4.2.2~~ 508.5.2.1. Fire Flow Requirements](#) (<http://www.co.sandiego.ca.us/dplu/docs/firecode.pdf>)

~~Fire flows shall be based on Fire Code Appendix III-A. Consideration should be given to increasing the gallons per minute set forth in Appendix III-A to protect structures of extremely large square footage and for such reasons as: poor access roads; grade and canyon rims; hazardous brush; and response times greater than five minutes by a recognized fire department or fire suppression company.~~

~~In hazardous fire areas as defined in Fire Code Appendix II-A, the main capacity for new subdivisions shall not be less than 2,500 gallons per minute, unless otherwise approved by the chief.~~

~~If fire flow increases are not feasible, the Fire Chief may require alternative design standards such as: alternative types of construction providing a higher level of fire resistance; fuel break requirements which could include required irrigation; modified access road requirements; specified setback distances for building sites addressing canyon rim developments and hazardous brush areas; and other requirements authorized by this Code and as specified by the Fire Chief.~~

[Sec. ~~96.1~~ 508.3. Fire Flow.](#)
(<http://www.co.san-diego.ca.us/dplu/docs/firecode.pdf>)

[Sec. 508.3 Fire flow.](#)
[Fire flow requirements shall be based on Appendix B of the County Fire Code. Consideration should be given to increasing the gallons per minute as provided in](#)

Appendix B to protect structures of extremely large square footage and for such reasons as: poor access roads, grade and canyon rims, hazardous brush and response times greater than five minutes by a recognized fire department or fire suppression company.

In hazardous fire areas the main capacity for new subdivisions shall not be less than 2,500 gallons per minute, unless otherwise approved by the fire code official. If fire flow increases are not feasible, the fire code official may require alternative design standards such as other types of construction that provide higher levels of fire resistance; fuelbreak requirements, which may include required irrigation; modified access road requirements; specified setback distances for building sites addressing canyon rim developments and hazardous brush areas; and other requirements as authorized by this chapter and as required by the fire code official.

5.3.1.2 Applied Standards

Full compliance with the code. (Exceptions are identified in the code text.) The measurement of distance to the water main is from the existing main to the nearest portion of the subject parcel (to the property line), not to the proposed hydrant location.

5.3.2 Outside Water District

5.3.2.1 Applicable Code/Regulations

~~Sec. 903.3.2. Water Storage Tanks~~ (<http://www.co-san-diego.ca.us/dplu/docs/firecode.pdf>)

Water storage tanks, when permitted by the Chief, shall comply with Table 2, Water Storage Tank Requirements.

Table 2
Water Storage Tank Requirements

Building Square Feet	Gallons Per Minute Water Flow	Capacity Gallons	Duration Minutes
Up to 1,500	250	5,000	20
Over 1,500	250	10,000	40
<u>When exposure distance is one hundred feet (100') or less from adjacent property, increase in water storage may be required by the Chief, depending on the square footage of the exposed structure. When protecting exposures within 100 feet or less, the minimum flow duration shall not be less than two (2) hours unless otherwise approved by the Chief.</u>			

- Tank elevation shall be equal to or higher than the fire department connection on the premises. Regardless of domestic use, all tanks shall be equipped with a

~~device that will ensure that the tank contains the designated amount of water for fire flow duration as determined by the fire department. Tank size may be increased to serve multiple structures on a single parcel.~~

- ~~•Supply outlet shall be at least 4 inches in diameter from the base of the tank to the point of outlet at the fire department connection. The fire department connection shall be at least one 4-inch National Standard Thread (male), reduce to one 2 ½ inch National Standard Thread (Male). Additional outlets may be required.~~
- ~~•Location of fire department outlet to be determined on the plot plan when submitted to the fire department. Consideration will be given to topography, elevations, and distance from structures, driveway access, prevailing winds, etc.~~
- ~~•The outlet shall be located along an access roadway and shall not be closer than 50 feet nor further than 150 feet from the structure.~~
- ~~•All exposed tank supply pipes shall be of an alloy or other material listed for above ground use. Adequate support shall be provided.~~
- ~~•Water storage tanks shall be constructed from materials approved by the Fire Marshal and installed per manufacturer recommendations.~~
- ~~•The Chief may require any necessary information to be submitted on a plot plan for approval.~~
- ~~•Vessels previously used for products other than water shall not be permitted.~~

SEC. 96.1.508.2. TYPE OF WATER SUPPLY.

Section 508.2 of the California Fire Code reads:

Sec. 508.2 Type of water supply. Water supply may consist of reservoirs, pressure tanks, elevated tanks, water mains or other fixed systems, as approved by the fire code official, capable of providing the required fire flow in a reliable manner. In setting the requirements for fire flow, the fire code official shall follow section 508.3, Appendix B of the County Fire Code or the standard published by the Insurance Services Office, "Guide for Determination of Required Fire Flow".

Sec. 508.2.1 Private fire service mains. Private fire service mains and appurtenances shall be installed in accordance with NFPA 24.

Sec. 508.2.2 Water tanks. Water tanks for private fire protection, when authorized by the fire code official, shall comply with Table 508.2.2.

Sec. 508.2.2 Water tank requirements.

Table 508.2.2
Water Storage Tank Requirements

<u>Building Square Feet</u>	<u>Gallons Per Minute Water Flow</u>	<u>Capacity Gallons</u>	<u>Duration Minutes</u>
<u>Up to 1,500</u>	<u>250</u>	<u>5,000</u>	<u>20</u>
<u>Over 1,500</u>	<u>250</u>	<u>10,000</u>	<u>40</u>
<u>When exposure distance is one hundred feet (100') or less from adjacent property, or where additional hazards or calculated fire flow exists, the fire code official may require an increase in water storage.</u>			

1. Tank elevation shall be equal to or higher than the fire department connection on the premises. Regardless of domestic use, all tanks shall be equipped with a device that will ensure that the tank contains the designated amount of water for fire flow duration as determined by the FAHJ. Tank size may be increased to serve multiple structures on a single parcel.
2. Supply outlet shall be at least 4 inches in diameter from the base of the tank to the point of outlet at the fire department connection. The fire department connection shall be at least one 4-inch National Standard Thread (male), reduced to one 2½ inch National Standard Thread (male). Additional outlets may be required.
3. Location of fire department outlet shall be shown on the plot plan when submitted to the FAHJ. Consideration will be given to topography, elevations, and distance from structures, driveway access, prevailing winds, etc.
4. The outlet shall be located along an access roadway and shall not be closer than 50 feet or further than 150 feet from the structure.
5. All exposed tank supply pipes shall be of an alloy or other material listed for above ground use. Adequate support shall be provided.
6. Water storage tanks shall be constructed from materials approved by the fire code official and installed per manufacturer recommendations.
7. The fire code official may require any necessary information to be submitted on a plot plan for approval.
8. Vessels previously used for products other than water shall not be allowed.

5.3.2.2 Applied Standards

Full compliance with the code. ~~Note that s~~Structures or clusters of structures substantially greater than roughly 5,000 square feet will be required to provide additional water storage. In certain cases, the FAHJ or the Director of Planning and Land Use may require the creation of a small private water company to provide adequate fire suppression service and water supply for the life of the proposed project.

5.4 Ignition Resistive Building Construction and Fire Protection Systems

Following the October 2003 wildfires, and again after the firestorm of fall 2007, the County ~~assessments were made of~~ damaged and destroyed homes in an effort to identify areas where building codes could be strengthened in order to enhance the chances of a structure surviving a wildfire. As a result, in June 2004, and again in January 2008, the County amended the Fire Code and Building Code to improve the chances of a structure surviving a wildland fire. ~~to include two-tiered ignition-resistive construction requirements (basic and enhanced) for all new construction. As of January, 2008, construction standards for wildland fire areas appear only in the County Building Code.~~

~~5.4.1 Basic Ignition-Resistant Construction~~

~~5.4.1.1 Applicable Code/Regulations~~

~~Fire Code (Chapter 3 of Division 5 of Title 3 of the San Diego County Code of Regulatory Ordinances) and County Building Code (Title 5, Section 51.0001 et al)~~

~~Under this system, new structures located in the WUI must be built using basic ignition-resistive construction methods including, but not limited to, Class A Roofing, ignition resistant exterior walls, dual glazed windows, and attic and foundation venting that is located in a manner that inhibits embers from getting into the building.~~

~~5.4.1.2 Applied Standards~~

~~Full compliance with the code/regulations~~

~~5.4.2~~**5.4.1 Enhanced Ignition Resistant Construction**

~~5.4.2.1~~ 5.4.1.1 Applicable Code/Regulations

~~Building Code (Title 9, Division 2, Chapter 1 of the San Diego County Code of Regulatory Ordinances (Section 92.1.001 et al)~~

~~Fire Code (Chapter 3 of Division 5 of Title 3 of the San Diego County Code of Regulatory Ordinances) and County Building Code (Title 5, Section 51.0001 et al)~~

All structures within a wildland-urban interface as defined in the County Building Code with one or more of the following special hazards or conditions must be built using enhanced ignition-resistive construction methods.

- ~~1) High fuel loads;~~
- ~~2) Steep topographic conditions;~~
- ~~3) Less than 100 feet of fuel modification (with the exception of Rancho Santa Fe, which requires that ALL structures comply with Enhanced Fire Resistive Construction); or,~~
- ~~4) Areas identified as high to very high fire hazard areas per local fire agencies or under the Bates Bill.~~

The enhanced ignition-resistive construction system includes, but is not limited to, all requirements formerly under Basic Fire Resistant Construction system, including tempered glass skylights, dual pane glazing with at least one pane tempered, metal rain gutters, along with more stringent ignition resistant eave construction, stricter venting requirements, solid-core or non-combustible exterior doors, and prohibitions against combustible attachments/projections such as fences and patio covers.

5.4. ~~1.2~~.2 Applied Standards

Full compliance with the code/regulations

5.5 **Defensible Space, Ornamental Landscaping and Vegetation Management**

History has shown through structural losses experienced in the Witch Creek, Harris, Rice, Poomacha, Cedar, Paradise, Otay, Harmony, Viejas, Gavilan and Pines Fires that defensible space is a critical factor of structure survival. By ensuring defensible space around structures, fire fighting teams are provided a line of defense to protect homes and other valued assets at risk of wildland fires. In February 2004, the Board of Supervisors adopted amendments to the County's Combustible Vegetation and Other Flammable Materials Ordinance (Weed Abatement Ordinance) in an effort to reduce the build-up of combustible vegetation and require adequate fuel modification from structures.

5.5.1 **Fuel Modification**

5.5.1.1 Applicable Code/Regulations

California Code of Regulations Title 14, Article 5 Subchapter 2 "SRA Fire Safe Regulations" Section 1276.01. Setback for Structure Defensible Space

(a) All parcels 1 acre and larger shall provide a minimum 30 foot setback for buildings and accessory buildings from all property lines and/or the center of a road.

(b) For parcels less than 1 acre, local jurisdictions shall provide for the same practical effect.

~~Title 4 of Division 8 of Title 6 of the San Diego County Code, Section 68.404 – Prohibitions/Clearance Requirements.~~

Title 9, Division 6, Chapter 1 of the San Diego County Code, Section 4707.1.- 4707.3 – Setbacks/Prohibitions/Fuel Modification Requirements.

Buildings and structures shall be setback a minimum of 100 feet from any property line adjacent to a national forest, state park or open space preserve with wildland fire hazards. This setback may be reduced when additional mitigation measures are employed that are satisfactory to both the FAHJ and the building official.

In all wildland-urban interface areas a mandatory minimum of 100 feet of fuel modifications from all structures is required. The Director of Planning and Land Use may authorize a distance less than 100 feet, but no less than 30 feet.

5.5.1.2 Applied Standards

The minimum setback from any property line in State Responsibility Areas is 30 feet (even though Zoning Setback may be less). Minimum setback from property lines abutting national forests, open space preserves, and designated riparian areas is 100 feet. Any such forest, preserve or riparian areas must be identified.

Projects located in a Hazardous Fire Area shall include Fuel Management Zones (FMZ) surrounding all structures that are greater than 250 square feet in size. An FMZ is a 100-foot area surrounding and extending in all directions from all structures, in which all flammable vegetation or other combustible growth is cleared away or modified, except for:

- Single specimens of trees or other vegetation that are well-pruned and maintained so as to effectively manage fuels and not form a means of rapidly transmitting fire from other nearby vegetation to any structure; and,
- Grass and other vegetation located more than 50 feet from the structure and less than 18 inches in height above the ground may be maintained where necessary to stabilize the soil and prevent erosion.

All ornamental landscaping shall be consistent with County's "Fire, Defensible Space and You..." (County of San Diego 2004; Internet link: http://www.sdcountry.ca.gov/dplu/fire_resistant.html ~~County of San Diego - Dept. of Planning and Land Use - Fire, Defensible Space and You ...~~). Projects requiring landscape plans must clearly identify the type of plant materials, locations and spacing of plant materials, and irrigated and non-irrigated landscaping. The landscape consultant may recommend in the text the inclusion or exclusion of specific varieties for review by the County landscape architect.

Maintenance requirements and suggestions for landscaping in FMZs ~~is~~are provided in:

- The Consolidated County Fire Code (<http://www.amlegal.com>)
<http://www.sdcounty.ca.gov/dplu/docs/firecode.pdf>;
- “Fire, Defensible Space *and* You...” (~~County of San Diego – Dept. of Planning and Land Use – Fire, Defensible Space and You ...~~)
http://sdcounty.ca.gov/dplu/fire_resistant.html);
- “Fire-safe Landscaping Can Save your Home”
(<http://www.sdcounty.ca.gov/oes/docs/fswy12.pdf>); and
- The California Native Plant Society’s “Native Plant Landscaping to Reduce Wildfire Risk” (<http://www.cnpssd.org/fire/ReduceFireRisk.pdf>).

However, the Director of Planning and Land Use may accept the following as sufficient mitigation measures and allow for a reduction in the FMZ.

- 1) The FMZ shall normally be accommodated within the boundaries of the project. However, where it is determined that practical difficulties make it infeasible to do that, offsite areas may be included, provided that offsite fuel modification is assured by an enforceable easement from the neighboring property owner or another legally enforceable mechanism.
- 2) Normally the FMZ will be provided by surrounding the building area. However, it may be acceptable to approve locating the FMZ so as to surround the development area.
- 3) Any project that is required to prepare and implement a full FPP may also be required to prepare a **Fire Behavior Model** that evaluates a worst-case scenario wildfire event based on site topography, weather and vegetation. The modeling, combined with the consultant/fire authority’s expertise may result in the consultant proposing greater or lesser buffers to minimize building and occupant safety risks. Under no circumstances shall the FMZ of less than 30 feet be approved.

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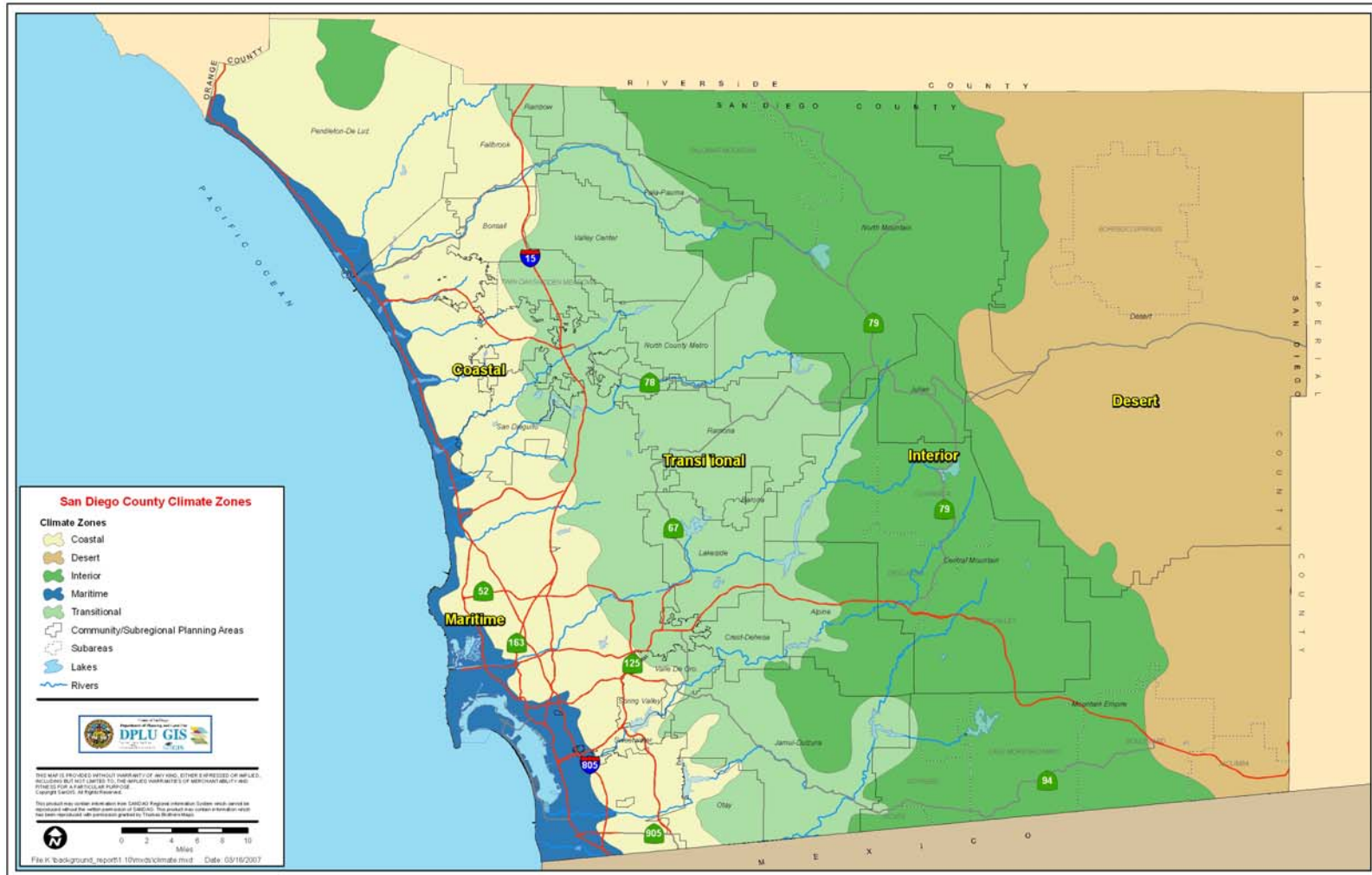
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Figure 1
Climate Zones in San Diego County



[ATTACHMENT A]

DEFINITIONS

Defensible space – An area either natural or man-made, where material capable of allowing a fire spread unchecked has been treated, cleared or modified to slow the rate and intensity of advancing wildfire. This will create an area for increased safety for emergency fire equipment and evacuating or sheltering civilians in place and a point for fire suppression to occur.

Fire authority having jurisdiction (FAHJ)

– The designated entity providing enforcement of fire regulations as they relate to planning, construction and development. This entity may also provide fire suppression and other emergency services..

Fuel modification zone – A strip of land where combustible vegetation has been thinned, modified or both and partially or totally replaced with approved drought-tolerant, fire-resistant and/or irrigated plants to provide an acceptable level of risk from vegetation fires. Fuel modification reduces radiant and convective heat, thereby reducing the amount of heat exposure on the roadway or structure and providing fire suppression forces a safer area in which to take action.

Hazardous fire area – Any geographic area mapped by the State or local jurisdiction as a high, or very high fire hazard area, or as set forth by the FAHJ that contains the type and condition of vegetation, topography, weather, and structure density to potentially increase the

possibility of vegetation conflagration fires shall be considered a hazardous fire area.

Structure – A residence and attached garage, building or related facility that is designed primarily for human habitation or buildings designed specifically to house farm animals. Decking, fences, and similar facilities are not considered structures for the purposes of establishing the limits of the fuel modification zone. Sheds, gazebos, and detached garages less than 250 square feet which are located within the fuel modification zone, shall be designed, constructed and placed such that they do not require the fuel modification zone to be increased beyond that required for the primary structures on the property.

Vegetation Maintenance – is the long-term proper care and upkeep of trees in order to reduce the flammability of a tree species. Maintenance includes, but is not limited to the pruning and removal of dead twigs, leaves or fronds and branches.

Wildland fuel – Any timber, brush, grass, or other flammable vegetation, living or dead, standing or down, that is not classified as ignition-resistive.

Wildland-urban interface – the area where structures and other human developments meet or intermingle with undeveloped wildland (as defined in Section 4702 of County Fire Code and Section 702A of County Building Code.)

[Attachment B]

SUMMARY OF REVISIONS

Guidelines for Determining Significance and Report Format and Content Requirements for Wildland Fire and Fire Protection were originally approved on March 19, 2007. The following is a summary of revisions made since original document approval.

First Revision, XXXX, 2008

- Updated to incorporate changes to the Fire Code and the Building Code
- Updated to change California Department of Forestry (CDF) to CAL FIRE
- Added standards for dead end roads
- Various editorial changes

COUNTY OF SAN DIEGO

REPORT FORMAT AND CONTENT REQUIREMENTS

WILDLAND FIRE AND FIRE PROTECTION



LAND USE AND ENVIRONMENT GROUP

Department of Planning and Land Use
Department of Public Works

~~March 19, 2007~~

[First Revision](#)
[Circulated for Public Review](#)
[May 15, 2008 – June 16, 2008](#)

PURPOSE

The ultimate goal of this document is to help in the preparation of useful, organized, consistent, and legally adequate Fire Protection Plan (FPP) in a timely and cost efficient manner. These guidelines apply to maps, spreadsheets and reports completed for all privately initiated discretionary projects reviewed by the Department of Planning and Land Use. These guidelines are designed to:

- Ensure the quality, accuracy and completeness of reports and to aid in staff's ability to review reports/assessments in a consistent manner
- Provide enough information to make appropriate planning decisions and to make determinations regarding conformance with applicable regulations
- Increase the efficiency of the environmental review process and to avoid unnecessary time delays

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1.0 INTRODUCTION

The Fire Protection Plan (FPP) shall follow the formats and guidance in this document. The overall length of the FPP and the amount of information to include will vary depending on the size and scope of the project, the combustible vegetation threat, and the unique topographical/geographical conditions of the site. Following the submittal of a discretionary project, the County's Scoping Letter may require that one or more of the following be submitted:

- Fire Protection Plan (Full Report)
Required, pursuant to ~~Article 86~~ Chapter 47 of the ~~California~~ County Fire Code, for larger projects or where sites have topographical, geographical, and/or combustible vegetation conditions that require detailed review and analysis.
- Fire Fuel Assessment (Fire Behavior Model)
Required in conjunction with a Fire Protection Plan (Full Report) for larger projects and/or projects with high fuel loads and/or steep topography.
- Fire Protection Plan (Letter Report)
Can be authorized by the County for projects that are located within the State Responsibility Areas and limited to infill projects with virtually no wildland exposure in the immediate vicinity. The FPP – Letter Report fulfills Article 86 requirements and is intended to be prepared by the project applicant or the applicant's representative. The FPP – Letter Report is a simple narrative documentation of site information and fire code compliance steps, and is not intended to require the services of a Fire Consultant. If upon review of the completed FPP – Letter Report ~~it is determined that the~~ code issues are determined to be unresolved or inadequately addressed, a Full Report will be required.

1.1 General Issues for Writing a Fire Protection Plan

Contents

- The overall requirement and listing of general contents of an FPP are outlined under ~~Article 86~~ Chapter 47 of the ~~State~~ County Fire Code.

Format

- Unless an exception is granted by the County, every draft FPP shall have the components as described in this Report Format and Content Requirements document.
- **DOCUMENTS THAT DO NOT CONTAIN ALL OF THE MANDATORY SECTIONS DESCRIBED IN THIS DOCUMENT WILL NOT BE ACCEPTED AS COMPLETE BY COUNTY STAFF UNLESS AN EXCEPTION IS GIVEN BY THE DIRECTOR OF THE DEPARTMENT OF PLANNING AND LAND USE (DPLU).**

Electronic Format

- Any draft text submitted electronically to the County for comment and review shall be formatted in Microsoft Word (2003 version or later). Staff may also request draft text to be submitted in PDF files. The electronic submission of draft text should be placed on a CD.

Document Length

- The length of the draft FPP must be kept to the absolute minimum. The document shall be only as long as required to accurately convey the pertinent fire code issues and to contain the level of analysis required to legally comply with the CEQA. Extraneous and "filler" material must always be omitted from the FPP.

Editorial Matters

- The draft FPP must be properly edited for correct format, spelling, grammar, page numbering, internal consistency and other editorial matters. [It must also be consistent with project submittals.](#) The draft FPP must be prepared in a clear format, written in clear language for review and understanding by decision-makers and the public (§15140). Complex and extremely analytical materials must be summarized and simplified, with the details and harder to comprehend materials placed in the technical appendices.
- The draft FPP must be written in a factual and objective manner. The document must provide a good faith effort of full disclosure [\(e.g. If code maximums are exceeded, that information must be stated, accompanied by proposed mitigation measures\).](#)
- An FPP that attempts to "bias" the document in favor of, or against the project is unacceptable. **COUNTY STAFF WILL REJECT THE DRAFT FPP IF PRELIMINARY REVIEW REVEALS NUMEROUS EDITORIAL AND/OR FACTUAL ERRORS OR OBVIOUS SLANT.**
- The draft FPP shall cite all documents used in its preparation including, where possible, the page and section number of any relevant codes or regulations. Other documents may be incorporated by reference, provided that the referenced document is summarized in the draft FPP and is made available for public inspection at a public place identified in the draft FPP, [including which shall include](#) a County office.

1.2 General Guidance and Key Compliance Points for Preparing a Fire Protection Plan

- Include only information that is directly pertinent to the FPP. Do not include extraneous, surplus, and anecdotal information.
- Instead of [simply](#) referring to "County Policy ...," specify whether the cited

document is an official Board of Supervisors Policy, a Departmental Policy, or an informal policy or practice.

- Maintain consistent terminology. For example, do not refer to “Fire ~~Fuel Assessment~~-Behavior Model” in one section of the report and “Fire Model” in another.
- Present discussion and analysis with a tone that is professional, academic and impartial, rather than argumentative or project advocacy.
- Where other documents are incorporated by reference, explain the purpose for doing so and briefly describe or summarize the part or parts incorporated. Such reference should be placed in the applicable narrative sections.
- Provide factual SUPPORT and RATIONALE for all conclusions stated.
- Check the accuracy of all factual statements. For example, to state that a County regulation sets forth a particular requirement, if in fact it does not, is unacceptable.
- With the exception of the FPP – Letter Report, reports should be technical in nature.
- Reports should be concise and written in a professional manner suitable for peer review. Staff may reject reports based on quality if the report is written in such a manner that a timely and accurate review cannot be completed.
- Attached plot plans and maps must be to standard engineering scale and contain a north arrow and both number and bar scales. A scale of 1" = 160 feet, or 1" = 80 feet would not be acceptable. When maps are reduced, they are to be scalable by using a standard engineering scale (e.g. 1" = 10' (or 100) thru 60' (or 600') in 10 foot intervals).
- Draft copies of the report must have all changes made in response to staff comments in strikeout/underline form. “Strikeout/underline” draft, and “clean” copies should be submitted simultaneously. Final copies of the report must be clean, with all editing marks removed.
- The Draft Fire Protection Plan will be reviewed for technical accuracy and completeness by a County Fire Code Specialist and the serving fire district’s Fire Marshal, if appropriate. The plan is considered draft until County staff determines the report to be complete.
- The FPP shall use mandatory, not permissive language, as the approved document is binding on the project.

2.0 REPORT FORMATS

2.1 Fire Protection Plan – Full Report Outline

BINDER COVER & COVER PAGE

The Cover Page of the FPP Full Report shall include the following information:

- Project common name
- Project applications numbers. Must include all associated discretionary permit numbers (e.g. TM XXXX, TPM XXXXX, ZAPXX-XXX) and the environmental log number (Log No. XX-XX-XXX)
- Date of the original report, followed by the date(s) of all iterations
- Principal author's name, firm name and address
- Signature of principal author
- Project applicants' names and addresses
- A statement that reads: "*Prepared for the County of San Diego*"
- Color photo of the project site

TABLE OF CONTENTS AND HEADINGS

The table of contents must follow the order and format outlined in this document. Page numbers should be assigned when possible. Titles of each attachment/appendix should be listed in the order in which they are found in the document. The Table of Contents must be formatted in the following manner:

CHAPTER I. CHAPTERS SHALL BE SPECIFIED BY NUMBER AND SHALL BE PRESENTED IN BOLD AND IN ALL CAPS

I.I First level subchapters shall be specified by number and shall be presented in upper and lower case, bold, and underlined

I.I.I Second level subchapters shall be specified by number and shall be presented in upper and lower case, and bold.

I.I.I.I Third level subchapters shall be specified by number and shall be presented in upper and lower case, italics, and bold.

EXECUTIVE SUMMARY

The purpose of the Executive Summary is to provide a quick reference for the public and decision-makers. Therefore, the language should be less technical than that used in the remainder of the document and should be no more than one page in length. The Executive Summary should include a brief summary of the project, the topographic/geographic and combustible vegetation conditions/challenges of the site and surrounding areas, existing fire related services, potential project impacts/issues and proposed mitigation. The summary should include a brief discussion of anticipated fire behavior in the vicinity, based in part on fire behavior modeling (expanded in the body of the FPP.) No new information should be provided in the summary that is not further explained elsewhere in the document.

Chapter 1.1 INTRODUCTION

Every Fire Protection Plan shall include the following introductory language:

This Fire Protection Plan (FPP) has been prepared for the (*insert common name of the project here*). The purpose of the FPP is to assess the potential impacts resulting from wildland fire hazards and identify the measures necessary to adequately mitigate those impacts. As part of the assessment, the plan has considered the property location, topography, geology, combustible vegetation (fuel types), climatic conditions, and fire history. The plan addresses water supply, access (including secondary/emergency access where applicable), structural ignitability and fire resistive building features, fire protection systems and equipment, impacts to existing emergency services, defensible space, and vegetation management. The plan identifies and prioritizes areas for hazardous fuel reduction treatments and recommend the types and methods of treatment that will protect one or more-at-risk communities and essential infrastructures. The plan recommends measures that property owners will take to reduce the probability of ignition of structures throughout the area addressed by the plan.

1.1 Project Location, Description and Environmental Setting

1.1.1 Project Location

Discuss the project location in the local and regional context. Include a copy of the site plan/plot plan with topo overlay. In the event the subject is adjacent to steep topography or continuous fuels, additional mapping information may be required.

1.1.2 Project Description

Provide a very detailed description of the project, including all on-site and off-site components. An 8.5"x11" or 11"x17" copy of the proposed subdivision map/plot plan must be attached to the report as a numbered figure(s). The project description should be as detailed as possible, and at a minimum, include the following information (additional information may be required):

- Size of project site and area proposed for development.
- Purpose and scale of proposed uses associated with the project, such as residential development or recreational camping.
- Proposed structures (size, location, purpose, etc.).
- Location of all easements, including those for biological open space, steep slope easements, riparian areas, limited building zone easements, utilities and roads.
- Proposed or potential uses (e.g. clearing allowances) within open space or riparian areas.
- Off-site improvements, such as for roads or utility extensions, and brief analysis of existing off-site road conditions (e.g. width, grade, and paving).

1.1.3 Environmental Setting

Describe the physical characteristics of the subject site and surrounding areas. At a minimum, the Environmental Setting section must include the following information:

- Dates of all site inspections/visits conducted
- Topography
- Vegetation (type and density)
- Fuel loads
- Fire history for the area
- Elevation
- Climate (general and seasonal)
- Public and private ownership of land in the vicinity, particularly any preserved lands adjacent or contiguous to the site
- A description of the existing land uses on site and on surrounding lands

Chapter 2H. GUIDELINES FOR THE DETERMINATION OF SIGNIFICANCE

The Fire Protection Plan must evaluate the adverse environmental effects that a proposed project may have from wildland fire and properly mitigate those impacts to ensure that development projects do not unnecessarily expose people or structures to a significant risk of loss, injury or death involving wildland fires. Detailed guidelines for the determination of significance are identified in the Wildland Fire and Fire Protection Guidelines for Determining Significance. This section of the FPP must include the following Guidelines for the Determination of Significance:

- a. Would the project expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?

- b. Would the project result in inadequate emergency access?
- c. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance service ratios, response times or other performance objectives for fire protection.
- d. Would the project have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?

Chapter 3. ANTICIPATED FIRE BEHAVIOR IN THE VICINITY

A fairly brief narrative of anticipated fire behavior in the project vicinity terms of fuels, terrain, weather, intensity, before and after mitigation. This narrative should include a brief summary of fire behavior modeling results, and set the tone for project analysis and mitigation measures that follow. This is the appropriate area to review FIRE HISTORY.

Chapter 4. ANALYSIS OF PROJECT EFFECTS

The following significance guidelines will be considered substantial evidence that a significant wildland fire impact will occur from project implementation.

- *The project cannot demonstrate compliance, or offer Same Practical Effect, with applicable fire regulations, including but not limited to the California Fire Code, California Code of Regulations, County Fire Code, or the County Consolidated Fire Code*
- *A comprehensive Fire Protection Plan and the project is inconsistent with the its recommendations including fuel modification.*
- *The project cannot meet the emergency response objectives identified in the Public Facilities Element of the County General Plan or offer Same Practical Effect.*

This section must include an evaluation of project compliance with the Significance Guidelines listed in Section 2.0, above. The project must be analyzed in order to identify potential adverse impacts and to identify adequate mitigation measures for impacts resulting from wildland fire hazards. At a minimum, an analysis must include an evaluation of the following areas:

4.1 Adequate Emergency Services

At a minimum, this section of the report must include the following discussions:

- Fire jurisdiction providing service, location of the nearest fire station obligated to respond, and their emergency responsibility
- Travel distance and travel time (include methodology for determination)
- Compliance/non-compliance with the Public Facilities Element of the San Diego County General Plan

4.2 Fire Access

The analysis must include a description of the existing off-site and proposed on-site road network, including the following:

- Main/secondary access
- Road widths, angles of approaches/departures, obstructions (gates), fire lane marking and turnarounds, including analysis of off-site roads from a public-way and deviations from fire code.
- Road grades and surface improvements
- [Proposed building pads and roads/driveways serving them \(including emergency vehicle turnarounds as required. LBZs may be proposed as a means of insuring adequate setback from property lines, open space preserves, riparian areas, etc.\)](#)
- On-going road maintenance (identify entity responsible, private funding mechanism)
- Compliance/non-compliance with codes/regulations and significance standards

4.3 Water

4.3.1 For projects inside a Public or Private Water District,

- Provide a copy of the [Water](#) Service Availability Form along with a map that shows existing and proposed hydrant locations and spacing.
- [Fireflow in mains in wildland areas for new residential development is 2500 GPM.](#)
- Compliance/non-compliance with codes/regulations and significance standards.

4.3.2 For projects outside a Public or Private Water District, [compliance with Section 96.1.508.2.](#)

- Compliance/non-compliance should be based on codes/regulations and significance standards.

4.4 Ignition Resistant Construction and Fire Protection Systems

County ~~Fire and~~ Building Codes specify construction standards for all structures located within the Wildland-Urban Interface areas. Provide a listing of the structures and their uses and clearly identify proposed deviations from applicable code sections of the Fire/Building County Code. Identify deviations; DO NOT simply repeat the code.

4.5 Fire Fuel Assessment

- Summarize the wildland and non-native fuels on and adjacent to the site, and their potential threat of burning, prior to Vegetation Management.

4.6 Fire Behavior Modeling

- Summarize fire behavior modeling results, linking the results to fuel assessment and defensible space. (Details such as data input and output are presented in the Technical Appendices.) (a discussion of Fire Behavior Modeling follows this FPP format outline)

4.7 Defensible Space and Vegetation Management

At a minimum, this section of the report must ~~include the following discussions:~~

- Provide an overview of flammable vegetation within and adjacent to the project site (type and density, and direction relative to specific lots)
- Identify Fuel Modification Zones (with dimensions) for building pads and access roads, and link to Fire Fuel Assessment, Fire Behavior Modeling.
- Include vegetation management (clearing) practices that will be implemented during the life of the project and the organization responsible for maintenance (the organization cannot be dissolved or unfunded)
- Identify how boundaries of vegetation management zones will be permanently identified in the field.
- ~~Summarize the results of the Fire Fuel Assessment (Fire Model), if applicable. The Fire Model must be included as an Appendix to the Fire Protection Plan~~
- Identify plant species that are proposed.
- Demonstrate ~~C~~compliance/non-compliance with codes/regulations and significance standards.

4.8 Cumulative Impact Analysis

This and other projects may have a cumulative impact on the ability to protect residents from wildfires. Over time, with this project and other development in the area, population in the rural areas will increase, which may increase the chances of a wildfire and increase the number of people and structures exposed to risk of loss, injury or death.

Property taxes and other currently applicable fees generated by the project may not adequately fund fire services. Identify how the project and other proposed development

in the area may contribute to this cumulative impact and what mitigation measures are being proposed to address this impact (e.g. [establishing a Community Facility District](#), project compliance with [or exceeding](#) codes/standards).

[Chapter 5.](#) MITIGATION MEASURES AND DESIGN CONSIDERATIONS

Provide brief descriptions of proposed mitigation measures and design considerations. For each measure, state the impact being mitigated. Some mitigation measures MAY require additional details.

[Chapter 6.](#) CONCLUSION

For each significant impact, determine if the proposed mitigation measures have reduced the significance level to “less than significant” in accordance with the stated Significance Guidelines.

[Chapter 7.](#) LIST OF PREPARERS AND PERSONS AND ORGANIZATIONS CONTACTED

Provide a list of preparers, noting each person included on the County list of approved consultants. Note that the principal author must be on the County list or the report will not be accepted.

[Chapter 8.](#) REFERENCES

Include a listing of all references used in the report ([not personal references for the preparer.](#))

TECHNICAL APPENDICES

The Table of Contents for the Appendices shall list each document attached to the report in the order in which they are included. The following documents must be included in the report, either in the text (if size is appropriate) or as an appendix:

- Site Map/Plot Plan with topography overlay
- Aerial photo of site and immediate vicinity – with property lines shown
- Photos of the site at ground level
- Fire Model (if required)
- Completed and signed form “DPLU #399F – Project Facility Availability Form for Fire”

2.2 Fire Behavior Model

Summary Narrative

As part of the Fire Behavior Model, a Summary Narrative must be included that provides an overview of the assumptions and findings. Please ensure that the narrative includes discussion of wind compression, spotting potential, fire location/direction, assessment of neighboring fuel beds, and topographical impacts. The language should be less technical than used in the Fire Model Report and should be no more than one page in length.

Use of Model Inputs - Caveat

The Fire [Behavior](#) Model is a tool for fire authorities to estimate the behavior of fire that is moving towards a structure given certain assumptions. The Fire [Behavior](#) Model is only an estimate and not designed to replace eye-witness accounts or the experience of the local FAHJ who is familiar with wildland fire behavior.

The standard weather parameters that are discussed herein are designed to provide local FAHJ and fire consultants with a generally accepted set of model inputs to ensure overall fire modeling consistency for certain fuel types. The inputs are not stagnate and will constantly be revised and amended as additional information becomes available and modeling software changes. The County will post changes to these standard weather parameters on their website as they occur. Further, prior to finalizing modeling inputs, fire consultants must contact the local FAHJ to confirm that the model inputs proposed are reasonably accurate for the area being considered.

~~Please n~~ote that BehavePlus is not the only recognized fire model that is available; it is identified in this report only because it is a model currently most used by fire consultants. While the three fuel models that are listed as a comparison of fire behavior values under BehavePlus, other recognized models may be used. Use of these alternative models will be accepted so long as the consultant provides documentation that supports and justifies the assumptions that are used.

Model Inputs – Historical Background

The requirement to submit a Fire Protection Plan for development in wildland areas has demonstrated a need for a generally accepted set of weather parameters for extreme fire conditions during summer time and Santa Ana fire weather patterns.

Analysis of 44 years of weather data (1961-2005) from the USDA Forest Service's Weather Information Management System (WIMS) provides a sampling of weather patterns across San Diego County. The County is divided into five climate zones from the coast to the desert. (Climates of San Diego County, Agricultural Relationships, University of California, Agricultural Extension Service, and U.S. Weather Bureau.) Daily afternoon weather observations were manually taken at selected fire stations across the county between 1961 and the early 1990's. Remote Automated Weather Stations (RAWS) have replaced manual observations beginning in 1992. <http://famweb.nwcg.gov/weatherfirecd/>

Fire Family Plus software (USDA Forest Service) was used to summarize and analyze historical daily fire weather observations and to compute fire danger indices based on the National Fire Danger Rating System (NFDRS).

Weather data from April 15th through December 31st was chosen to represent the general limits to fire season. Fires have occurred between January 1st and April 14th but while dangerous fire weather conditions occur during this period, they typically are not as severe as September and October weather conditions. Including winter weather records would dilute the data and add numerous winter storm events that require manual interpretation. Summer fire conditions were derived from records beginning on June 15th and ending September 15th.

Maximum wind speed data was checked for reasonableness by comparing speed with surrounding stations. Winds associated with winter storms were identified by cross checking with precipitation and relative humidity observations and then excluded. Santa Ana wind season is assumed to start on September 15th. Wind speed is measured at 20 feet above the ground and averaged for at least 10 minutes.

Maximum wind speed was calculated by taking the difference between the maximum recorded wind speed and the 99th percentile wind speed, adding it to the 99th percentile wind, adding 10 percent for a safety margin, and rounding the answer up. This had the effect of throwing out the outliers while including the highest reasonable winds. A table showing days with winds over the 99th percentile is included for each zone. Peak wind for each zone is the highest recorded wind by a RAWS during the Cedar fire (October 26, 2003)

The program for calculating fire behavior and spread requires temperature and relative humidity [ranges](#) as inputs. Temperature ranges of 90°-109°F and relative humidities of 5%-9% are reasonable for most areas of the county under Santa Ana conditions.

The Burning Index graph is included for reference. It represents relative difficulty of control of a wildfire and is calculated from temperature, wind, relative humidity, fuel (vegetation) moisture and wind.

Actual weather records may be used in lieu of these if they can be demonstrated to be representative of the actual site, recorded by a recognized system, and represent at least five years of data.

Please note that BehavePlus is not the only recognized fire model available, it just so happens to be the model most used by fire consultants. While these three fuel models are listed as a comparison of fire behavior values under BehavePlus, there may be other nationally recognized fire behavior models available today or in the future that may be used. Use of these alternative models will be accepted so long as the consultant provides documentation that supports and justifies the assumptions that are used.

Table 1
BEHAVE Plus 3.0.1
Worst case sustained winds (10 minute average and peak) Fuel Model 1 at 50% slope

Zone	Period	Temperature	Relative Humidity	Sustained Wind Speed	Burning Index (99%)	Rate of Spread Feet/min	Flame length
Maritime	Summer	70-89°F	30-34%	17 mph	41	300	8
	Santa Ana	90-109°F	5-9%	18 mph	64	470	10
	Peak	90-109°F	5-9%	22 mph	-	550	11
Coastal	Summer	90-109°F	10-14%	19 mph	57	430	9
	Santa Ana	90-109°F	0-4%	21 mph	112	600	12
	Peak	90-109°F	0-4%	26 mph	-	730	13
Transitional	Summer	90-109°F	10-14%	19 mph	119	430	9
	Santa Ana	90-109°F	5-9%	28 mph	145	730	13
	Peak	90-109°F	5-9%	41 mph	-	730	13
Interior	Summer	90-109°F	5-9%	18 mph	153	470	10
	Santa Ana	90-109°F	5-9%	24 mph	168	730	13
	Peak	90-109°F	5-9%	56 mph	-	730	13
Desert	Summer	90-109°F	5-9%	18 mph	153	470	10
	Santa Ana	90-109°F	5-9%	24 mph	168	730	13
	Peak	90-109°F	5-9%	56 mph	-	730	13

Table 2
BEHAVE Plus 3.0.1
Worst case sustained winds (10 minute average and peak) Fuel Model 4 at 50% slope

Zone	Period	Temperature	Relative Humidity	Sustained Wind Speed	Burning Index (99%)	Rate of Spread Feet/min	Flame length
Maritime	Summer	70-89°F	30-34%	17 mph	41	480	47
	Santa Ana	90-109°F	5-9%	18 mph	64	620	56
	Peak	90-109°F	5-9%	22 mph	-	700	60
Coastal	Summer	90-109°F	10-14%	19 mph	57	989	50
	Santa Ana	90-109°F	0-4%	21 mph	112	740	61
	Peak	90-109°F	0-4%	26 mph	-	870	65
Transitional	Summer	90-109°F	10-14%	19 mph	119	615	54
	Santa Ana	90-109°F	5-9%	28 mph	145	1100	73
	Peak	90-109°F	5-9%	41 mph	-	1600	87
Interior	Summer	90-109°F	5-9%	18 mph	153	620	56
	Santa Ana	90-109°F	5-9%	24 mph	168	870	66
	Peak	90-109°F	5-9%	56 mph	-	2400	105
Desert Chaparral	Summer	90-109°F	5-9%	18 mph	153	620	56
	Santa Ana	90-109°F	5-9%	24 mph	168	870	66
	Peak	90-109°F	5-9%	56 mph	-	2400	105

Table 3
BEHAVE Plus 3.0.1
Worst case sustained winds (10 minute average and peak) Fuel Model 10* at 50% slope

Zone	Period	Temperature	Relative Humidity	Sustained Wind Speed	Burning Index (99%)	Rate of Spread Feet/min*	Flame length*
Maritime	Summer	70-89°F	30-34%	17 mph	41	-	-
	Santa Ana	90-109°F	5-9%	18 mph	64	-	-
	Peak	90-109°F	5-9%	22 mph	-	-	-
Coastal	Summer	90-109°F	10-14%	19 mph	57	-	-
	Santa Ana	90-109°F	0-4%	21 mph	112	-	-
	Peak	90-109°F	0-4%	26 mph	-	-	-
Transitional	Summer	90-109°F	10-14%	19 mph	119	-	-
	Santa Ana	90-109°F	5-9%	28 mph	145	-	-
	Peak	90-109°F	5-9%	41 mph	-	-	-
Interior	Summer	90-109°F	5-9%	18 mph	153	30	10
	Santa Ana	90-109°F	5-9%	24 mph	168	40	11
	Peak	90-109°F	5-9%	56 mph	-	100	17
Desert	Summer	90-109°F	5-9%	18 mph	153	-	-
	Santa Ana	90-109°F	5-9%	24 mph	168	-	-
	Peak	90-109°F	5-9%	56 mph	-	-	-

* Surface Fire Only. Behave does not model crown fires in timber fuel types

2.3 Fire Protection Plan – Letter Report Outline

The Fire Protection Plan ([FPP](#)) – [Letter Report](#) is provided to assist project applicants who are processing minor projects that have little to no anticipated risk of loss, injury or death involving wildland fires. Discretionary permits that may qualify for a [FPP – Letter Report](#) include projects that are located within the State Responsibility Areas and are considered to be “infill” projects with virtually no wildland exposure in the immediate vicinity. ~~The County’s intent is~~ [it is intended](#) that the FPP – Letter Report be prepared by the applicant or the applicant’s representative, [not a fire consultant](#).

If, upon review of the completed FPP - Letter Report, the County determines that code issues are unresolved or inadequately addressed, or the project cannot comply with required conditions that are specified in the “Project Exposure to Wildland Fires” section below, the project does not qualify for a FPP – Letter Report and a FPP – Full Report will be required.

The [FPP – Letter Report](#) shall ~~follow~~ [be written in](#) the [following](#) format. Guidance on how to complete certain sections of the report is shown in (*italics*). Questions on how to complete the form can be directed to the DPLU Fire Service Section at (858) 694-2960.

(Date)

County of San Diego
Department of Planning and Land Use
5201 Ruffin Road, Suite B
San Diego, CA 92123

(Local Fire Agency/District Having Jurisdiction)
(Address)
(City, State, Zip)

SUBJECT: FIRE PROTECTION PLAN – LETTER REPORT
(Project Common Name)
(Project Application Number – e.g. TPM ~~XX-XXXX~~ [nnnnn](#))
(Assessor Parcel Numbers [e.g. nnn-nnn-nn-00](#))

This Fire Protection Plan (FPP) – Letter Report is being submitted as an evaluation, pursuant to ~~Article 86–Chapter 47~~ of the ~~California–County~~ Fire Code, of the adverse environmental effects that a proposed project may have from wildland fire and as mitigation of those impacts to ensure that the above referenced project does not unnecessarily expose people or structures to a significant risk of loss, injury or death involving wildland fires.

PROJECT DESCRIPTION

(Briefly describe the project being proposed – initial acreage, parcel size range (e.g. “24.5 acre parcel in A-72 zone divided into four 4.0 to 6.5 acre residential lots”))

ENVIRONMENTAL SETTING

1. **Location:** (give the ~~what~~ community ~~is~~ where the project is located (e.g. Fallbrook) ~~]~~ and describe the character of the area that surrounds the subject property –, i.e. how is it currently developed)
2. **Topography:** (generally identify the terrain of the site and adjacent properties (e.g. land is generally flat immediately off Access Street for 100 yards followed by rolling hills. Unusually high steep terrain can be found in the northwestern corner of the site and beyond)
3. **Geology:** (~~describe what existing/proposed roads will be used to access the property and their current condition. How will the area be evacuated in the event of a wildfire?~~) (describe any geological features that might affect access roads or building pad design, or increase or reduce wildfire potential on the site.)
4. **Flammable Vegetation:** (discuss the type and density of vegetation – this information is typically available in the project Biology Report. If a Biology Report is not required for your project, generally describe the types of plants that are found on the property and the density of vegetation.)
5. **Climate:** (identify general climate and seasonal events – e.g. “coastal or west sloping valley or mountainous or desert climate – subject to Santa Ana wind events, flash flooding”, etc.)

PROJECT EXPOSURE TO WILDLAND FIRES

1. **Water Supply:** (Describe how water is going to be supplied to the project. NOTE: If the project is outside the boundaries of a water district, include the following language in this section of the FPP – Letter Report: “All proposed structures shall have a water tank, with size, location and fire department connection (FDC) consistent ~~tee~~ with the County ~~Consolidated~~ Fire Code.”

If the project is inside the boundaries of a water district, ~~you must attach~~ a copy of the Service Availability Form for water must be attached to this FPP –Letter Report. Furthermore, include the following language in this section of the FPP – Letter Report: “Hydrants shall be located along fire access roadways as determined by the Fire Marshal to meet operational needs, at intersections, at cul de sacs, and at intervals pursuant to the County Consolidated Fire Code. Required fireflow in water main is 2500 gallons per minute, with 1500 gallons per minute capability at individual hydrants.”

2. **Fire Access Roads**

Location: (Describe the location of all entrance roads and the number of parcels that will access each road, include development pads and driveways)

Access to Multiple Evacuation Routes: (Describe the route and distance measured along the fully complying fire access roadway from the building pad of the most remote parcel of the project to the first opportunity to evacuate the area in two different remote directions.)

“Secondary Access” is required in State Responsibility Areas for evacuation and firefighting access when accumulated dead end roads exceed thresholds that are based on parcel zone size.

<u>zoned less than one acre:</u>	<u>800 feet</u>
<u>zoned 1 to 4.99 acres:</u>	<u>1320 feet</u>
<u>zoned 5 to 19.99 acres:</u>	<u>2640 feet</u>
<u>zoned 20 acres or larger:</u>	<u>5280 feet</u>

Dead Ends: (~~Describe the length of all on-site roads.~~ NOTE: Include a statement that “Dead end driveways/roadways cannot exceed 150 feet in length without an approved emergency vehicle turnarounds at the terminal end.”).

Width: (Describe the width of all access roads. NOTE: All fire access roads including driveways must be improved to a minimum 16’ width all-weather surface suitable for travel by 50,000 lb. fire apparatus. Fire access roads serving more than two single-family dwellings shall be a minimum 24’ wide all-weather surface suitable for travel by 50,000 lb. fire apparatus.

Vertical Clearance: (Include a statement that “minimum vertical clearance of 13 feet 6 inches must be maintained for the entire required width of fire access roads”.)

Grade: (Describe the maximum grade in percent for the roads and driveways. NOTE: Grades greater than 15% are not permitted without mitigation; grades greater than 20% are prohibited.)

Surface: (Describe the surface improvements for all roads and driveways. Be specific rather than quoting this entire code section).

Surfacing materials. For fire access roadways and for driveways serving individual single-family dwellings, the minimum surfacing materials required shall vary with the slope of the fire apparatus access road as follows:

<u>0-10% Slope</u>	<u>4" Decomposed Granite</u>
<u>11-15% Slope</u>	<u>2" Asphaltic Concrete</u>
<u>16-20% Slope</u>	<u>3" Asphaltic Concrete</u>

The paving and sub-base of private roads and driveways shall be installed to the standards specified in Section I-M of the County of San Diego Off-street Parking Design Manual.

3. **Setback from Property Lines:** *(The minimum setback from any property line in State Responsibility Areas or wildland areas is 30 feet (even though Zoning Setback may be less). Exception allowed if parcels are smaller than one acre and same practical effect can be proven. Minimum setback from property lines abutting national forests, open space preserves, and designated riparian areas is 100 feet. The applicable statement must appear in this section, and any such forest, preserve or riparian areas must be identified.)*
4. **Building Construction:** *(The Report must make the following statement: “All structures shall comply with the ignition-resistive construction requirements: Wildland-Urban Interface areas of Chapter 7A of the County Building Code.”)*
5. **Fire Protection Systems:** *(The Report must make the following statement: “All habitable structures and attached garages shall have residential fire sprinklers per County Consolidated Fire Code requirements.”)*
6. **Defensible Space:** *(The Report must make the following statement: “A minimum 100-foot Fuel Management Zone will be established and maintained around all structures over 250 square feet in size. No off-site clearing is required or authorized.”)*
7. **Vegetation Management:** *(The Report must make the following statement: “Prescribed Defensible ~~Open~~ Space (fuel management zones) will be maintained by the property owners ~~on~~ at least ~~an~~ annually ~~basis~~ or more often as needed ~~by the property owners.~~ Boundaries of fuel management zones will be clearly, permanently marked. Plants~~ing~~ used in the Defensible Space will be from an approved fire resistance~~et~~ planting materials list that is maintained by County of San Diego. Department of Planning and Land Use.”)*
8. **Fire Behavior Computer Modeling:** Based on preliminary evaluation by the County Fire Marshal, Computer Fire Behavior Modeling is not required for this project FPP – Letter Report per County Fire Marshal (Note: Contact the Fire Authority Having Jurisdiction (FAHJ) to confirm).

Prepared By (Signature)¹

Date

Printed Name

Title

Property Owner (Signature)¹ Date Printed Name

¹ The FPP – Letter Report will not be accepted without original signatures.